



Knowledge, Attitudes, and Practices of Primary Health Care Physicians in the Screening and Prevention of Elderly Falls at Alwazarat Health Center, Riyadh, KSA

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Abstract

Background: Elderly, occupational retirees.⁽¹⁾ In KSA, 51% of the elderly report a history of falls at least once in the past 12 months, and half of them have a history of recurrent falls, with larger rates in certain chronic disease groups.⁽⁵⁾ With serious injuries there occur complications and high economic costs. The objective of the study is to evaluate the primary health care physicians' knowledge, attitudes, and practices regarding the screening and prevention of elderly falls.

Methods: A cross-sectional study conducted at the ALWAZART Center at PRINCE SULTAN MEDICAL MILITARY CITY in RIYADH City, KSA. A total of 86 questionnaires out of 96 distributed having 30 questions about physicians' knowledge, attitudes, and practices were completed and returned for a response rate of 90%. Data were analyzed using SPSS. The p-value for significance was <0.05.

Results: The knowledge of physicians was divided into the categories of good, 27.9%; intermediate, 39.5%; low, 31.4%; and very low, 1.2%. Of the physicians, 35.5% do not follow any guidelines regarding elderly fall screening and prevention, 15% always ask for the previous history of falls, 19.8% prescribe Vitamin D for fall prevention, 26.7% always advise exercise, and 53.5% have never been trained in the screening and prevention of falls among the elderly.

Conclusion: From the results of the study, we found different levels of knowledge among the physicians regarding the screening and prevention of falls among the elderly, with the greatest proportion at the intermediate level ($n=34$: 39.5%). Further studies and professional educational programs are required and local recommendations and an approved screening scale are needed.

Keyword: prevention, physicians, screening, elderly, knowledge, falls.

Introduction

Our nation's elderly population is increasing and is in need of more qualified health care screening and prevention. With their easy access to the

community and comprehensive knowledge about most of the common diseases, primary health care physicians play an important role in providing care, promoting the health of the general

population, and educating and screening people who are at risk of accidents such as falls. To date, the screening and prevention in primary health care of falls among elderly is marked by a lack of scientific studies evaluating the knowledge, attitudes, and practices of physicians in Saudi Arabia.

Background

As there is no universally agreed definition of the elderly by age group, the World Health Organization created a general definition differing from one country to another depending on the age when the person becomes eligible for occupational retirement.⁽¹⁾

According to the Cambridge Dictionary, a fall is when a person “suddenly go [es] down onto the ground or towards the ground without intending to or by accident.”⁽²⁾

Reducing the risk of patient harm resulting from falls is one of six International Patient Safety Goals, in addition to Identifying patients correctly, improving communication, Improving the safety of high-alert medications, Assuring correct-site, correct-procedure, correct-patient surgery, and Decreasing the risk of health-care-related infection.

Internationally, among the elderly one out of every four had fallen once in the last year,⁽³⁾ with a prevalence of 28–35%.⁽⁴⁾ In Saudi Arabia, unfortunately, 51% of the elderly report a history of a fall in the past 12 months, half of them had a history of recurrent falls, and the number was greater in chronic disease groups.⁽⁵⁾

Numerous international guidelines have been published discussing the screening and prevention of elderly falls, such as the USPSTF, NICE, and American Geriatrics Society guidelines, which include numerous details about the screening and prevention of elderly falls.

In the ALWAZARAT center the MORSE Fall Risk Assessment is used for all our geriatric patients. The tools can be used by staff nurses and involve a determination of the history of falls, secondary diagnosis, ambulatory aid, IV/heparin

lock, gait/transferring, and mental state to yield a score used to classify elderly patients as high, moderate, and low risk. The aim of this study is to improve the implementation of elderly patient care in SAUDI ARABIA.

Project Objectives

To evaluate the primary health care physician's level of knowledge, attitudes, and practices regarding screening and prevention of falls in the elderly.

Literature Review

According to WHO, there is no general agreement on the age at which a person becomes old, but the age at which a person becomes eligible for occupational retirement has become the most common definition.⁽¹⁾

In 2010, an estimated 524 million people worldwide, representing 8% of the world's population, were aged 65y and above.

Internationally, millions of older adults suffer falls every year. One out of every four older people suffers a fall each year,⁽³⁾ with a prevalence of 28–35% of those aged 65y and above suffering at least one fall each year, increasing to 42% among those 70y and older.⁽⁴⁾ Of these, 20%–30% of them will suffer serious injury.⁽⁶⁻⁷⁾ Moreover, falling once doubles the chances of falling again.⁽⁸⁾

A study by Pamela Lowens published in 2009 found that one of every ten ER visits among the elderly >65y was due to fall injuries, with 41% suffering fractures, 22.6% superficial injuries, and 21.4% open wounds as complications. Arm and hip fractures were the most common fall-related injuries.⁽⁹⁾

SAMIRA AL SENANY and AMER AL SAIF published a study carried out in Saudi Arabia in 2015 assessing the physical health status and quality of life among older Saudi adults. With a total of 55 male and female elderly subjects with ages ranging between 60 and 90 years, they found 51% of this group of the elderly had fallen once in their lives and 49% more than once in the past 12 months. The prevalence is greater in the case of

chronic diseases such as DM (58.18%) and HTN (29.0%).⁽⁵⁾

The dramatic increase in the elderly population around the world and the long lives of individuals make caring for the elderly an important issue, especially in the prevention and screening of common problems of the elderly. One such problem is falls.

Effective falls prevention programs include:

- Screening for the risk of falls by asking all the elderly patients if they have fallen in the past 12 months, and the frequency and circumstances of falls. We should determine whether elderly patients have had difficulties in walking or balance.⁽¹¹⁾
- Multifactorial falls risk assessment, used for patients who have a recurrent history of falls or abnormal gait and balance.⁽¹¹⁾ This includes a fall-focused history to collect information about the falls: when, where, prodromal symptoms like dizziness, loss of consciousness, frequency, medications, history of relevant risk factors such as comorbidity with age-related diseases like OA or dementia, patient's daily activities, and assessment of the environment.⁽¹¹⁻¹²⁾
- During examination we should perform full musculoskeletal, neurological, and cardiovascular examinations involving vital signs and postural vital signs to rule out postural hypotension, which is defined as a drop in systolic or diastolic blood pressure by 20 or 10 mm Hg within three minutes of standing compared to that in a sitting or supine position.⁽¹³⁾ Also, we should perform a visual acuity test and hearing assessment using a whispered voice test: "Stand at arm's length behind the patient and mask hearing in one ear, then whisper a short word and numbers and ask the patient to repeat them,"⁽¹⁴⁾ lower limb examination, examination of the feet and footwear, neurological examination, and examination of

musculoskeletal function by a series of tests; "get up and go is one of the best."⁽¹²⁾ The USPSTF recommends against "automatically" performing a multifactorial risk assessment for all older community-dwelling adults due to small benefit.⁽³⁰⁾

- Diagnostic test: Can help in detecting the risk of falls: "hemoglobin, serum urea, creatinine, glucose and vitamin D."⁽¹²⁾
- Intervention assist: Instituting appropriate exercise programs, managing the risk factors, dealing with environmental factors, and ensuring a daily vitamin D supplement of 800 IU⁽¹⁰⁾ for ages above 70y and 600 IU for ages 50–70y.⁽¹⁵⁾ Vitamin D is the only intervention that can decrease the rate in long-term care.⁽¹⁶⁾

Research Design

Descriptive cross-sectional study.

Methods

Using a cross-sectional design, we proposed to evaluate the knowledge, attitudes, and practices of primary health care physicians toward the screening and prevention of falls among the elderly. Started in February 2016 and ended in August 2017.

The study was conducted in the ALWAZARAT Health Care Center in RIYADH, KSA. It is one of the largest primary healthcare centers in KSA, under the Medical Service Department (MSD) of the Ministry of Defense. It is accredited by the Joint Commission on International Accreditation (JCIA).

The study population was primary health care physicians at the ALWAZARAT Health Care Center after the exclusion of pediatric, antenatal, and mental health physicians. The required sample size was calculated as 96 using the formula $SS = (Z^2 * (p) * (1 - p)) / c^2$, with the Correction for Finite Population formula: new $SS = SS / (1 + (SS - 1) / \text{population})$, with confidence level = 95%, confidence interval = 5, and

population = 128. The sample size formula is available online at: www.surveysystem.com/sscalc.htm⁽¹⁷⁾

The sampling technique was simple randomized sampling using the Randomizer web site, <https://www.randomizer.org>.⁽¹⁸⁾

The questionnaire was designed as a self-reported questionnaire with a Likertscale to assess the knowledge, attitudes, and practices of primary health care physicians. Validation was performed and reviewed by 4 consultants of family medicine and one biostatistician. Also, a test-retest and pretesting study were performed on 10 physicians representative of the study population to determine the clarity of the language, questionnaire structure, and difficulties that might arise when distributing and collecting the questionnaires.

The questionnaire is divided into 6 parts:

- Demographic questions, Questions Nos. 1 to 5.
- Question No. 6 on the definition of elderly.
- Questions Nos. 7 to 18 evaluated the knowledge level.
- Questions Nos. 19 to 22 assessed attitudes.
- Questions Nos. 23 to 28 assessed practice.
- Questions Nos. 29 and 30 on the MORSE Fall Screening Scale.

The questionnaires were distributed at the clinic over a period of 3 months and collected at the end of the study by the researcher. Data were analyzed using SPSS version 20.

Ethics approval was obtained from the Ethics Committee of the Family Medicine Department and the Research Ethics Committee of the Research Center of Prince Sultan Military Medical Center as Project No. 811. All of the participants provided consent agreeing to participate in the study.

Results

Ninety-six questionnaires were distributed, of which 86 were completed and returned, resulting in a response rate of 89.5%. The analysis was based on these replies.

Table 1- Demographic data of the physicians

Demographic characteristics	N	%
Gender		
Male	58	67.4
Female	28	32.6
Age		
20–29 years	42	49.4
30–39 years	34	40
40–49 years	4	4.7
50 and above	5	5.9
Job level		
Consultant	3	3.5
Senior Registrar	5	5.8
Registrar	12	14
Resident	66	76.7
Qualification		
MBBS	61	70.9
Saudi Board	12	14
MRCGP	4	4.7
Arab Board	1	1.2
Other	8	9.3
Years of experience		
Less than 2 years	23	27.1
2–5 years	35	41.2
6–10 years	14	16.5
More than 10 years	13	15.3

The general characteristics of participants are presented in Table 1. The majority of participants were male, with a male-to-female ratio of 2.07:1. With a mean age ($\pm SD$) of 31.99 (8.274) years and range of 24–65 years, the majority of physicians' ages were between 20 and 29 years ($n = 42$: 49.4%).

The majority of physicians (76.7%) were residents ($n = 66$). And majority of physicians with experience 2-5 years 41.2% .

Turning to the results for the definition of "elderly," 55.8% ($n = 48$) of the physicians considered a person with an age above 60y elderly, while only 2.3% ($n = 2$) considered a person above 50y elderly, and 30.2% ($n = 26$) a person above 70y.

Knowledge assessment: Turning to the answers to the knowledge assessment questions shown in Table 2, the mean ($\pm SD$) score was 60.65 (20.408), and scores ranged from 20.83 to 100. Only 27.9% ($n = 24$) physicians answered 75% or more of the questions correctly, 39.5% ($n = 34$) correctly answered 50–75%, 31.4% ($n = 27$)

answered 25–50% correctly, and only one physician (1.2%) scored below 25%. The questions that were correctly answered the most by primary health care physicians were those concerning visual, hearing, gait, and cognitive assessment as a part of multifactorial risk assessment of falls in the elderly ($n=56$, 75.6%), hemoglobin, urea, creatinine, glucose, and vitamin D as a part of investigations ($n=61$, 70.9%), and the need to review the patient’s medications as a part of fall screening and assessment ($n=54$, 62.8%).

Table 2 - Evaluation of the knowledge of primary health care physicians in the ALWAZARAT Health Care Center

Knowledge level	N	%
Good	24	27.9
Intermediate	34	39.5
Low	27	31.4
Very low	1	1.2

On the other hand, the questions that were correctly answered the least were the three concerning Vitamin D and the recommended dose as a part of a fall prevention program, as shown in Table 3 presenting the numbers and percentages of correct answers for the questions used to evaluate the knowledge of primary health care physicians.

Table 3 Numbers and percentages of correct answers to questions used to evaluate the knowledge of primary health care physicians

Question	N	%
To screen the risk of falls among elderly persons we have to ask all elderly patients if they have fallen in the last 12 months.	47	54.7
Multifactorial risk assessment is used for the elderly with recurrent falls or gait and balance abnormality.	36	41.9
DM, HTN, and other comorbidities will increase the risk of fall among elderly patients.	47	54.7
Visual, hearing, gait, and cognitive assessments should be part of the multifactorial risk assessment of falls in the elderly.	65	75.6
Orthostatic hypotension is one of the important risk factors, defined as a decrease in systolic blood pressure of 20 mmHg or decrease in diastolic blood pressure of 10 mmHg within 3	48	55.8

minutes of standing in comparison to a sitting or supine position.		
Falling once doubles the chance among the elderly offalling again.	33	38.4
Hemoglobin, urea, creatinine, glucose, and vitamin D can help in detecting the risk of falls in elderly patients.	61	70.9
We have to review elderly medications as a part of fall risk assessment.	54	62.8
The recommended intervention for prevention of falls among elderly are: An exercise program, managing risk factors, dealing with environmental factors, and vitamin D supplements.	41	47.7
The best intervention to decrease the rate of falls in the long term is vitamin D supplements.	24	27.9
The recommended dose of vitamin D supplements for fall prevention in the elderly >70 is 800 IU/day.	41	16.3
The recommended dose of vitamin D supplement for falls prevention in those aged 50–70 is 600 IU/day.	9	10.6

High knowledge scores, defined as scores >75%, were distributed by physician’s age as follows: 30–39y had 70% versus 30% for all other age groups ($P \leq 0.01$). Moreover, 70.8% ($P = .57$) of the high-knowledge respondents were male, 70.8% ($P = .02$) were resident physicians versus the other groups, 41.7% ($P = 0.086$) were physicians with 2 to 5 years of experience, and 70.8% ($P = .47$) were MBBS-qualified physicians.

Attitude assessment: Seventy physicians (81.4%) agreed that falls among the elderly in Saudi Arabia are prevalent, and 32.8% of them indicated strong agreement. Moreover, 91.7% ($n = 78$) agreed that falls among the elderly are a major problem, with 58.9% of them strongly agreeing. Furthermore, 96.5% of them ($n = 83$) agreed that the primary health care physician plays an important role in the screening and prevention of falls among older people, with 65% of them strongly agreeing; and 66.2% ($n = 57$) physicians are against providing advice regarding the screening and prevention of elderly falls only if the patient requests it. Table 4 shows the reported attitudes of primary health care physicians toward elderly fall screening and prevention.

Table 4 -The attitudes of primary health care physicians toward elderly fall screening and prevention

Statement	Response in nos. (percentage)				
	Strongly disagree	disagree	I don't know	Agree	Strongly agree
Falls are prevalent among the elderly in Saudi Arabia.	0	1 (1.2%)	15 (17.4%)	47 (54.7%)	23 (26.7%)
Falls among the elderly are a major problem.	0	1 (1.2%)	6 (7.1%)	32 (37.6%)	46 (54.1%)
The primary care physician plays an important role in the screening and prevention of falls among the elderly.	0	0	3 (3.5%)	29 (33.7%)	54 (62.8%)
Providing advice regarding the prevention of elderly falls only when the patient requests it.	18 (20.9%)	39 (45.3%)	6 (7%)	10 (11.6%)	13 (15.1%)

Practices assessment: Among primary health care physicians, 35.5% did not follow any guidelines in dealing with elderly patients regarding the screening and prevention of falls. Only 15.1% of physicians always ask their elderly patients about any history of falls, and in contrast 16.3% never ask, while 66.2% of the doctors had examined an elderly patient for fall risk assessment at least once.

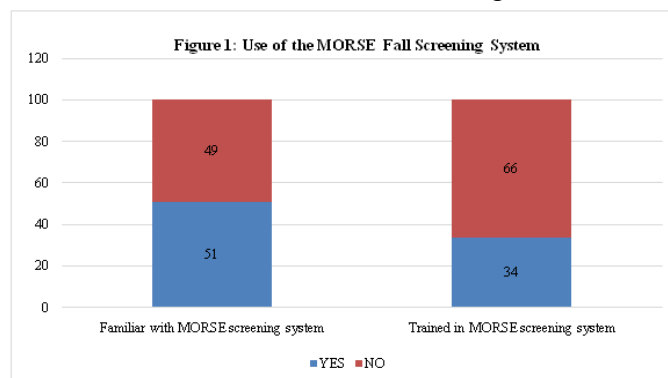
Furthermore, 26.7% of the physicians always advise their elderly patients to exercise, and only 4.7% never so advise them. Moreover, 19.8% of the physicians always prescribe vitamin D as part of elderly fall prevention for their patients, while 3.5% never prescribe it.

Of the 86 doctors, 46 (53.5%) had never received training on elderly fall screening and prevention. Please refer to Table 5.

Table 5 -The practice of primary health care physicians toward elderly fall screening and prevention

Statement	Response in nos./percentage			
	Never	Sometimes	Often	Always
If following a guideline for screening and prevention of elderly falls.	30 (35.5%)	31 (36.5%)	14 (16.5%)	10 (11.8%)
If routinely asking elderly patients for history of falls.	14 (16.3%)	29 (33.7%)	30 (34.9%)	13 (15.1%)
If examining an elderly person for fall risk assessment.	29 (33.7%)	26 (30.2%)	24 (27.9%)	7 (8.1%)
If ever trained about screening and prevention of elderly falls.	46 (53.5%)	19 (22.1%)	13 (15.1%)	8 (9.3%)
If advising elderly patient to exercise.	4 (4.7%)	21 (24.4%)	38 (44.3%)	23 (26.7%)
If prescribing vitamin D for elderly patients.	3 (3.5%)	25 (29.1%)	41 (47.7%)	17 (19.8%)

Regarding the MORSE Falls Risk Assessment for the elderly, 49% of our primary health care physicians were not familiar with it and 66% had never been trained in it, as shown in Figure 1.



Discussion

From the knowledge evaluation we can see that the knowledge of primary health care physicians at the ALWAZARAT Health Center was divided thus: good, 27.9%; intermediate, 39.5%; low, 31.4%, and 1.2%, very low. The reasons for the low level of knowledge of the physicians might be due to the facts that:

- 1) 35.5% of physicians never follow any guidelines about the screening and prevention of elderly falls.

2) 53.5% of physicians have never been trained in the screening and prevention of elderly falls.

3) There is a lack of Saudi recommendations or guidelines about elderly fall screening and prevention.

Although there is a lack of studies of falls among the elderly in Saudi Arabia and their risks of complications, most of the doctors agreed or strongly agreed that falls among the elderly are prevalent and a major problem due to their background knowledge about the complications of falls, mainly among the elderly female population.

In this study, around 54.7% of physicians strongly agreed with the need to ask their elderly patients about their history of falls in the last year as part of screening, while in practice only 15.1% of them reported asking for their history of falls, which is not good in light of the simplicity of this question, which is so significant in the screening of the elderly. On the other hand, around 60% of the physicians did not take into consideration that one fall doubles the risk among the elderly of another fall, which perhaps is why they answered that they do not ask for the history of previous falls.

In this study, only 27.9% of physicians strongly agreed with the use of vitamin D to prevent elderly falls, but only 19.8% always prescribe it as part of prevention. This discrepancy might be due to the low level of knowledge that vitamin D is the best intervention for the prevention of falls or the recommended dose.

In the practice assessment, only 26.7% always advise their elderly patients to exercise, and we should determine the barriers resulting in that low rate.

Our results also show that around half of the physicians consider 60 years of age as elderly, which resembles the WHO definition that the elderly are defined by the occupational retirement age.

Finally, resident physicians represented the majority of the study sample, which is due to the fact that the ALWAZARAT Center is the largest center for family medicine program training in Saudi Arabia, providing full services in medical

consultation and patient management. Around 71% of the physicians interviewed have only a bachelor's degree.

Limitations of the study

The results of this study might show bias as a result of participants choosing what they think to be the favored answer rather than answering honestly.

Moreover, this study covered only primary health care physicians in the ALWAZARAT Center, who might well not be representative of primary health care physicians at other centers. Also, a predominance of post-graduates might have affected the study results.

Conclusion

Primary health care physicians at the ALWAZARAT Primary Health Care Center in Saudi Arabia vary in their level of elderly fall screening and prevention, with the largest group at the intermediate level ($n = 34$, 39.5%). However, further studies are required to assess the knowledge, attitudes, and practices of primary health care physicians at other centers. We should search for barriers that can affect a proper system of screening and prevention of elderly falls, as well as institute more educational programs and establish agreed local recommendations for the screening and prevention of elderly falls and an approved screening scale.

Acknowledgement

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QUESTIONNAIRE

Iam SAAD ALSHAHRANI, a family physician in the residency training program. This questionnaire is part of a study assessing the knowledge, attitudes, and practices of primary health care physicians regarding the screening of falls in the elderly. The aim of this study is to improve the implementation of elderly patient care.

By participating in this questionnaire, you agree to take part in this study, and all the information provided by you is strictly confidential. You or your practice will not be identified in any reports or publications that may result from this study.

For any questions you can contact me at:

email: saadshebnan@gmail.com

Mobile: 966567999456

My supervisor is DR.TAREK ELSAIED.

The contact number of DR.TAREK: 2910807/33933

Thank you for your cooperation.

Please answer the following questions:

1. AGE:

2. GENDER: male female

3. JOB TITLE: resident registrar senior registrar consultant

4. QUALIFICATION: MBBS MRCP Saudi Board of FM Arab Board of FM other:

5. YEARS OF PRACTICE SINCE GRADUATION:

6. BASED ON THE WHO DEFINITION OF THE ELDERLY, THE ELDERLY IN SAUDI ARABIA ARE PERSONS AGED: > 50y >60y >70y I don't know

THE NEXT QUESTIONS WILL EVALUATE THE KNOWLEDGE OF PRIMARY HEALTH CARE PHYSICIANS

Question	Answer				
	Strongly disagree	disagree	I don't know	Agree	Strongly agree
7. To screen the risk of fall among elderly persons, we have to ask all elderly if they have fallen in the last 12 months.					
8. Multifactorial risk assessment is used for the elderly with recurrent falls or gait and balance abnormality.					
9. DM, HTN, and other comorbidities will increase the risk of falls among elderly patients.					
10. Visual, hearing, gait, and cognitive assessments should be used as a part of the multifactorial risk assessment of falls in the elderly.					
11. Orthostatic hypotension is one of the important risk factors for falls, and is defined as a decrease in systolic blood pressure of 20 mmHg or decrease in diastolic blood pressure of 10 mmHg within 3 minutes of standing in comparison to the sitting or supine position.					
12. Falling once doubles the chance among the elderly of falling again.					
13. Hemoglobin, urea, creatinine, glucose, and vitamin D can help detect the risk of falls in elderly patients.					
14. We have to review elderly medications as a part of fall risk assessment.					
15. The recommended interventions for prevention of falls among elderly are: An exercise program, managing risk factors, dealing with environmental factors, and vitamin D supplement.					
16. The best intervention to decrease the rate of falls in the long term is vitamin D supplements.					
17. The recommended dose of vitamin D supplements for the prevention of falls in the elderly >70 is 800 IU/day.					
18. The recommended dose of vitamin D supplement for the prevention of falls in					

those aged 50–70 is 600 IU/day.					
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THE NEXT QUESTIONS WILL EVALUATE THE ATTITUDES OF PRIMARY HEALTH CARE PHYSICIANS

Question	Answer				
	Strongly disagree	Disagree	I don't know	Agree	Strongly agree
19. Do you think that falls among the elderly in Saudi Arabia are prevalent?					
20. Do you agree that falls among the elderly are a major problem?					
21. PHC physicians play an important role in the screening and prevention of falls among elderly patients.					
22. I would only provide advice regarding the prevention of falls among the elderly when the patient requests it.					

THE NEXT QUESTIONS WILL EVALUATE THE PRACTICES OF THE PRIMARY HEALTH CARE PHYSICIAN

Question	Answer			
	Always	Often	Sometimes	never
23. Are you following any guidelines in the screening and prevention of falls among the elderly?				
24. Do you routinely ask your elderly patients about their history of falls?				
25. Have you ever examined an elderly person for falls risk assessment?				
26. Were you ever trained in the screening and prevention of falls among the elderly?				
27. Do you advise your elderly patients to exercise?				
28. Do you prescribe your elderly patient vitamin D supplements?				

MORSE Fall Screening System

Question	Answer	
	Yes	No
29. In our center we use the MORSE Fall Risk Assessment for the elderly. Are you familiar with it?		
30. Were you ever trained in our MORSE Fall Risk Assessment?		