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# Editorial

*Dr Abdul Abyad*

Chief Editor



This is the last issue this year of the journal that handle important issues in Geriatrics. A paper from turkey attempted to evaluate the level of sarcopenia of home-dwelling elderly and the attitudes to frailty by asking their relatives, who applied as patients to a family practice in Antalya, Turkey. The study was a cross-sectional study with 1016 patients were asked if they had a frail elderly person at home. Participants, who gave positive answer were further asked questions on frailty level (SARC-F) of their elderly and attitudes concerning frailty at home. Descriptive statistics, Chi-square, and Spearman's rho correlation were used. Sarc-F Total Score was found 5.2 (median=5; SD=1.1; min-max=3-8; n=125). Participants were in agreement with statement "I feel competent in caring for my frail elder", "I would follow the treatment recommendations of my frail patient", "I would seek appropriate support for my frail elder", "Immobile, frail elder need home health services", "The family plays an important role in the early diagnosis of frailty", "Mobile technologies play an important role in the care of frail elders", and "Family members play an important role in the care of frail elders". The determination of self-perceived health is an acceptable method for assessment of the person, which might be also useful in caregivers of frail elders. This could certainly help to evaluate unmet health needs of frail elders, who are not able to visit the family physician.

A paper from Kurdistan looked at depression of older people in Kurdistan

Depression in the older people: A perspective from Kurdistan . Elderly population are increasing world-wide. In the next few decades such increase will be more prominent in developing world including Middle Eastern countries. Rate of morbidity is very much age related including depression. Impact of depression on health service

is enormous world-wide. The aim of the study to determine the prevalence of depression among elderly people in Kurdistan and identify any relation between depression in that population and gender, age, education level, Economical status, marital status, housing, alcohol use, functional status and history of chronic medical illnesses. The Geriatric Depression Scale -15(GDS-15) was translated to Kurdish and used for assessment of elderly patients, those above the age of 65. The researchers collected data via direct face to face interviews with the patient. 650 elderly subjects were questioned between January and June 2014. 64.2% of the study population scored at least 5 as per geriatric depression scale which is very significant. 22.8% had a score indicating they suffered moderate to severe depression. These finding had not been found in other similar studies in other countries. It was found to be statistically significantly that incidence of depression was higher in those who were older, female, had a higher level of education, from low socioeconomic status, unmarried and with chronic illness. A finding which found in other studies

A review paper from Lebanon and Tunis looked at the fear of falling syndrome as an emerging problem. The authors stressed that over the last two decades a surge of interest in the phenomenon of fear of falling. This paper summarizes current data pertaining to the concept, epidemiology, assessment and management of fear of falling. In addition it elaborate on the relationship of fear of falling to other factors. Fear of falling is a conceivable cause of excess disability and evolving public health problem. Fear of falling has been reported in a high percentage of community-dwelling elderly who both do and don't have a history of falling. The aims of this review are to: (a) elucidate the definition of fear of falling; (b) clarify measurements of fear of falling based on its definition; and (c) describe the risk factors for fear of falling.

## Frailty in Family Practice: A Survey of Caregivers of Frail Elders

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### ABSTRACT

The aim of this study was to evaluate the level of sarcopenia of home-dwelling elderly and the attitudes to frailty by asking their relatives, who applied as patients to a family practice in Antalya, Turkey. A cross-sectional study with 1016 patients were asked if they had a frail elderly person at home. Participants, who gave a positive answer were further asked questions on frailty level (SARC-F) of their elderly and attitudes concerning frailty at home. Descriptive statistics, Chi-square, and Spearman's rho correlation were used. Respondents were 52.1 (SD=12.66; min-max=19-83; n=1016). Most were women (N=762; 74.9%) and married (n=722; 75.1%). One hundred and sixty nine (16.8%) had a frail elder at home. The age of the frail elder was 78.2 (SD=8.21; min-max=55-98). Most were women (n=124; 75.6%). Sarc-F Total Score was found as 5.2 (median=5; SD=1.1; min-max=3-8; n=125). Participants were in agreement with the statement "I feel competent in caring for my frail elder", "I would follow the treatment recommendations of my frail patient", "I would seek appropriate support for my frail elder", "Immobile, frail elders need home health services", "The family plays an important role in the early diagnosis of frailty", "Mobile technologies play an important role in the care of frail elders", and "Family members play an important role in the care of frail elders". The determination of self-perceived health is an acceptable method for

assessment of the person, which might be also useful in caregivers of frail elders. This could certainly help to evaluate unmet health needs of frail elders, who are not able to visit the family physician.

**Key words:** Aging, frailty, caregiver, self-perceived health status, geriatric assessment, Turkey

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## Introduction

The portion of frail people in the community is increasing. Since the definition of this syndrome is in development, the clear numbers of frailty are not well known. A systematic review estimated the prevalence of frailty in the community ranging between 4-59.1% (1), which depended on the definition of frailty. Based on the Fried model it was found as 9.9% and 44.2% for frailty and pre-frailty respectively (2,3).

In Turkey recent studies have reported different frequencies. Akin S et al (4) reported in community-dwelling Turkish elderly a prevalence of frailty, pre-frailty and non-frailty measured with the modified Fried Frailty Index as 27.8, 34.8, and 37.4 %, respectively and 10, 45.6, and 44.4 % with FRAIL scale. Eyigör et al. (5) found 39.2 and 43.3 % of patients attending outpatient clinics of 13 university and training hospitals as frail and pre-frail, respectively. Çakmur H (6) reported in a rural city sample from East Turkey 7.1% frail and 47.3% pre-frail according to Fried Frailty criteria.

Frailty is a difficult process, which affects the patient and the caregivers. Conditions, which develop with aging and disability are a burden to the person and their family. Preventive measures have been recommended in the past to overcome this problem (3). Proper and early intervention might ameliorate the outcomes of this problem, which is proven by evidence (3).

The identification of frailty is important and family practice plays a central role. The family physician can deliver an holistic approach to manage frailty. Low-resourced settings and places with accessibility problems might especially benefit from this (7,8), but established well-developed health care systems also could profit from a person-centred approach.

The detection of frailty could follow an opportunistic pathway, where formal and informal health care and social service professionals could be useful. Further services of professionals, who are not especially trained for this risk group (midwives, mother and child care nurses) could be utilised for this purpose (3). The information retrieved from the caregiver might be an important source for early identification of these patients, who are in need of help and support. A patient-centred approach focusing on self-perceived care needs is a relatively unknown approach of needs assessment in frail elderly. It is as important as the geriatric assessment (9,10).

So far, we are not aware of any study, which is evaluating the contribution of caregivers for the identification of the frail person at home.

This study aims, to investigate by asking attendants to a family practice, the SARC-F scores of frail people at home and the opinion of caregivers on the care of the frail.

## Materials and Methods

**Research design:** This cross-sectional study included 1,016 patients, who consecutively visited a family practice outpatient clinic in Antalya, Turkey and who voluntarily participated in this study. The study took place between March-October 2015. The participants had educational level of at least primary school level.

The questionnaire had two steps. Firstly all participants were asked if they had a frail person at home for whom they were in charge of. The definition of frailty was made according to the definition stated in the document (Frailty is a multidimensional geriatric syndrome characterized by increased vulnerability to stressors as a result of reduced capacity of different physiological systems. It has been associated with an increased risk of adverse health-related outcomes in older persons, including falls, disability, hospitalizations and mortality, and has further been associated with biological abnormalities (e.g. biomarkers of inflammation) regardless of the definition used to assess frailty. This clearly suggests that frailty is influenced by a number of pathophysiological modifications involving the body's diverse physiological systems. <http://www.frailty.net/frailty-at-a-glance>) (11). The participants gave verbal consent.

**Instrument development:** The questionnaire was developed as follows: Firstly, the literature (1,2,12,13) and short frailty questionnaires (i.e. SARC-F) were evaluated (14). The draft questionnaire was evaluated by independent experts from family practice with a special interest in elderly care and frailty and afterwards pilot-tested with a total of ten patients. The pilot survey was excluded from the final database. This process enabled refined and improved items with clarity in the wording of the survey.

The survey had the following sections:

**a. Demographics:** 2 open-ended (i.e. age of the participant and frail elder) and 7 closed-ended questions (i.e. gender, marital status, frail elder at home; age, drugs, polypharmacy, and disease of the frail elder);

**b. SARC-F items (15,16,17):** Strength, assistance walking, rise from a chair, climb stairs, and falls are included in the SARC-F items. Scores range from 0-10. Each item counts for 0-2 points. Total score ranges are between 0 = best to 10 = worst. Outcome of total score was dichotomized to symptomatic (frail) (4+) and healthy (0-3) status. In this study the caregiver was asked "how much difficulty (the older person at home) had lifting or carrying 5 kg" (0 = no difficulty, 1=some, and 2 = a lot or unable to do); "how much difficulty (the older person at home) had walking across a room" (0 = no difficulty, 1=some difficulty, and 2 = a lot of difficulty, use aids, or unable to do without personal help); "how much difficulty (the older person at home) had transferring from a chair or bed" (whether they used aids or needed help to do this) (0 = no difficulty, 1=some difficulty, and 2 = a lot of difficulty, use aids, or unable to do without help); "how much difficulty they had climbing a flight of 10 steps" (0 = no difficulty, 1=some, and 2 = a lot or unable to do), and falls was scored a 2 for respondents who reported falling four or more times in the past year, 1 for respondents who reported falling 1-3 times in the past year, and 0 for those reporting no falls in the past year.

### c. Attitudes and Perception on the Care of their Frail Elder:

Participants were asked to rate the following questions on a five-point Likert scale (strongly disagree to strongly agree, scored from "1" to "5"): "I feel competent in caring for my frail elder", "I would follow the treatment recommendations of my frail patient", "I would seek appropriate support for my frail elder", "Immobile, frail elder need home health services", "The family plays an important role in the early diagnosis of frailty",

"Mobile technologies play an important role in the care of frail elders", and "Family members play an important role in the care of frail elders".

**Statistical analysis:** Data of this study were analysed with descriptive statistics; chi-square for categorical variables and Spearman's rho correlation. The level of significance was set at  $\alpha=0.05$ .

## Results

The age of caregivers of frail people were 52.1 (SD=12.66; min-max=19-83; n=1016). Most were women (N=762; 74.9%; men n=256; 25.1%) and married (n=722; 75.1%; divorced/widowed, n=165; 17.2%; single, n=74; 7.7%; missing value, n=57, 5.6%). One hundred and sixty nine (16.8%; n=14 missing values, 1.4%) patients indicated to have a frail person at home.

The age was 78.2 (SD=8.21; min-max=55-98; n=170). Most were women (n=124; 75.6%; male, N=40; 24.4%; n=854, 83.9 missing values). Disease of the frail elderly is shown in Table 1 (median= 1 disease; min-max=0-4).

Table 1

Disease	n
Hypertension	127
Hyperlipidemia	72
Osteoporosis	69
Diabetes	67
Sleep Disorders	51
Cataract	43
Congestive Heart Failure	42
Cognitive Impairment	40
CAD	37
Depression	34
Arthritis	34
COPD	27
Cerebrovascular Disease	20
Thyroid Disease	17
Cancer	17
Dysrhythmia	10
Glaucoma	9
Hearing Impairment	6
Parkinson	5
Atrial Fibrillation	4
Epilepsy	4
Other	34

Most frail persons (84%) used more than four drugs a day. The drugs used by the frail patient are shown in Table 2 (median 6 drugs; min-max=0-14). One hundred and twenty nine (75%) patients used four and more drugs.

**Table 2**

Drugs	n
Analgesics	135
Antihypertensives	110
Oral Antiaggregants	99
Vitamin B12	75
Heart Drugs	66
Antidiabetics	51
Osteoporosis	42
Antihyperlipidemics	39
Constipation	39
Stomach Drugs	33
Antidepressants	30
Urinary Incontinence	28
Antiarrhythmics	25
Insulin	22
Vitamin D	20
Antidementia Drugs	22
Asthma Drugs	12
Neuropathic Pain Drugs	12
COPD Drugs/ Bronchodilators	8
Eye Drugs	7
BPH Drug	6
Antiepileptics	5
Warfarin	5
Antiparkinson	4
Other	29

Sarc-F Total Score was found to be 5.2 (median=5; SD=1.1; min-max=3-8; n=125) (Figure 1). The frequency distribution of the SARC-F values of frail people are shown in Figure 2 (SARC-F Score  $\geq 4=99.8\%$ ; 4-6=85.2%). SARC-F $\geq 4$  was prevalent in 123 elderly, which was 12.1% of all participants in this study.

The attitudes of caregivers of frail people are shown in Figure 3 (page 8).

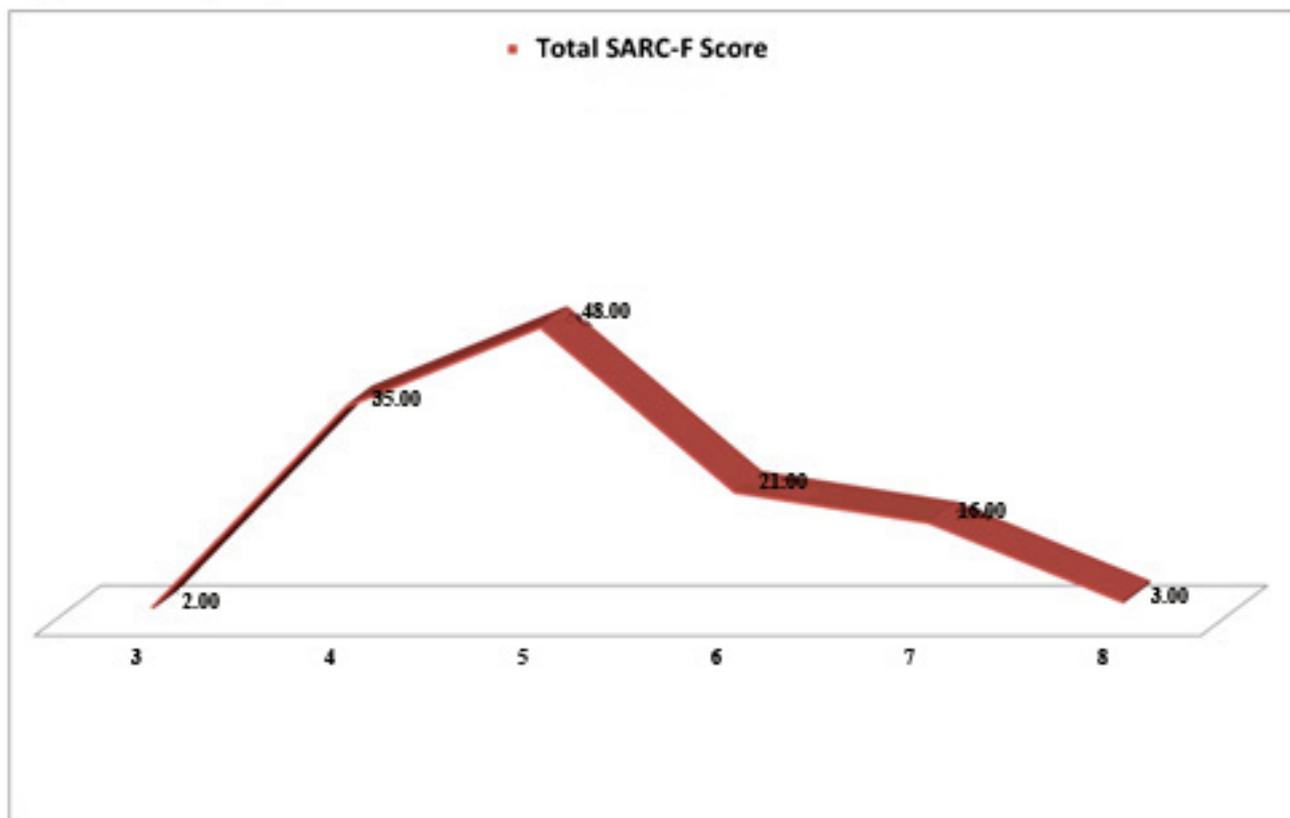
The gender of the participants showed no difference between their age, their frail elders' age and SARC-F total score ( $p>0.05$ ). The gender and the number of medicaments used did not have an effect on the SARC-F total score ( $p>0.05$ ).

Total SARC-F score correlated at medium level with the falls item ( $r=0.70, p<0.05$ ), walking item ( $r=0.46, p<0.05$ ), transfer item ( $r=0.44, p<0.05$ ), and stairs item ( $r=0.66, p<0.05$ ).

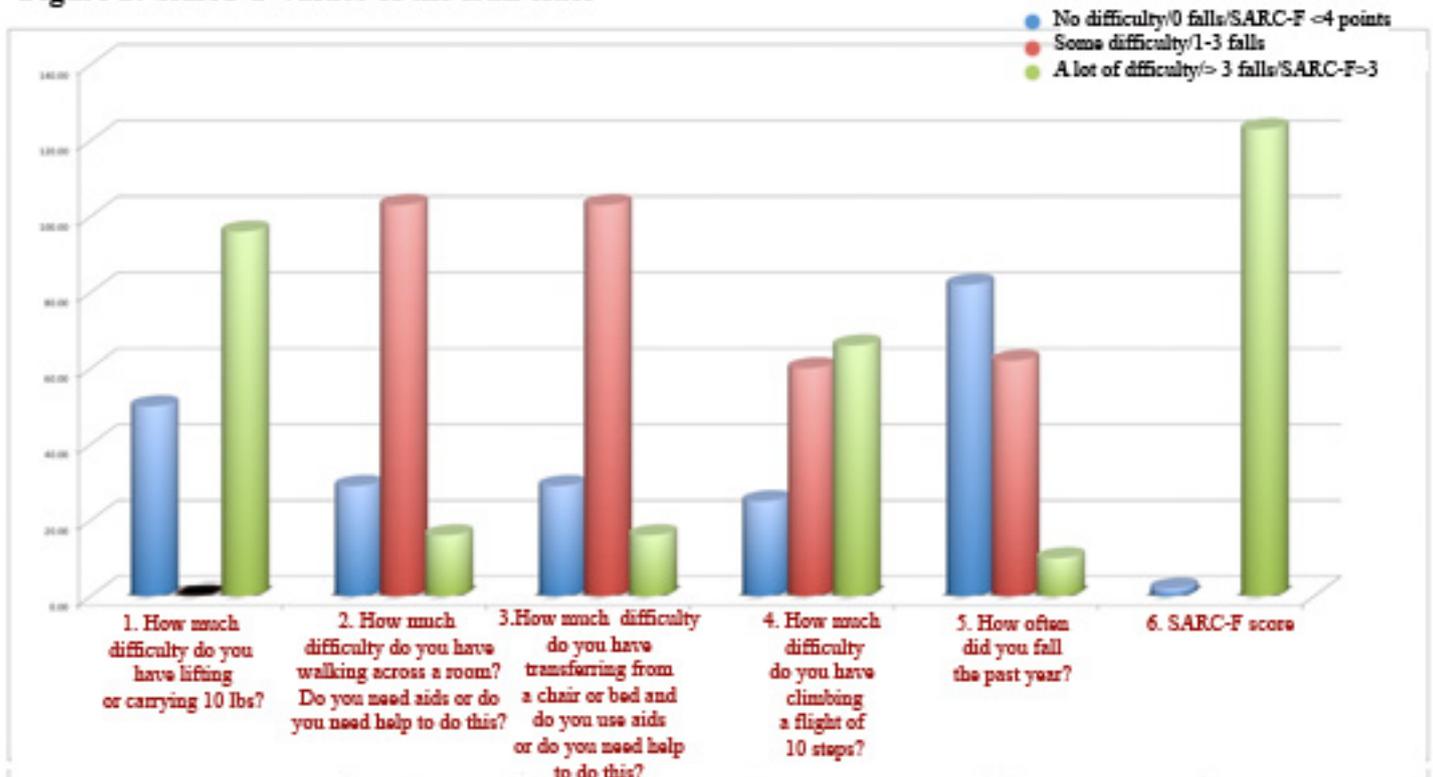
Attitude of competency to provide care item, correlated at medium level with following treatment recommendation item ( $r=0.49, p<0.05$ ), at low level with seeking appropriate care item ( $r=0.33, p<0.05$ ), and at low level with family members play important role item ( $r=0.17, p<0.05$ ); following treatment recommendation item showed medium level correlation with seeking appropriate care item ( $r=0.51, p<0.05$ ), and low level with the role of mobile technology item ( $r=0.21, p<0.05$ ); the seeking appropriate care item showed low level correlation with the early diagnosis item ( $r=0.19, p<0.05$ ) and with the role of mobile technology item ( $r=0.22, p<0.05$ ); the home health care item showed low level correlation with role of mobile technology item ( $r=0.25, p<0.05$ ); the early diagnosis item showed low level correlation with role of mobile technology item ( $r=0.23, p<0.05$ ) and the important contribution of the family item ( $r=0.32, p<0.05$ ).

The falls item of SARC-F showed low-medium level correlation with the competency to provide care item ( $r=0.34, p<0.05$ ); the power item of SARC-F showed low level correlation with the competency to provide care item ( $r=0.18, p<0.05$ ); total SARC-F score correlated at low-medium level with the competency to provide care item ( $r=0.31, p<0.05$ ) and low level with the following treatment recommendation item ( $r=0.18, p<0.05$ ).

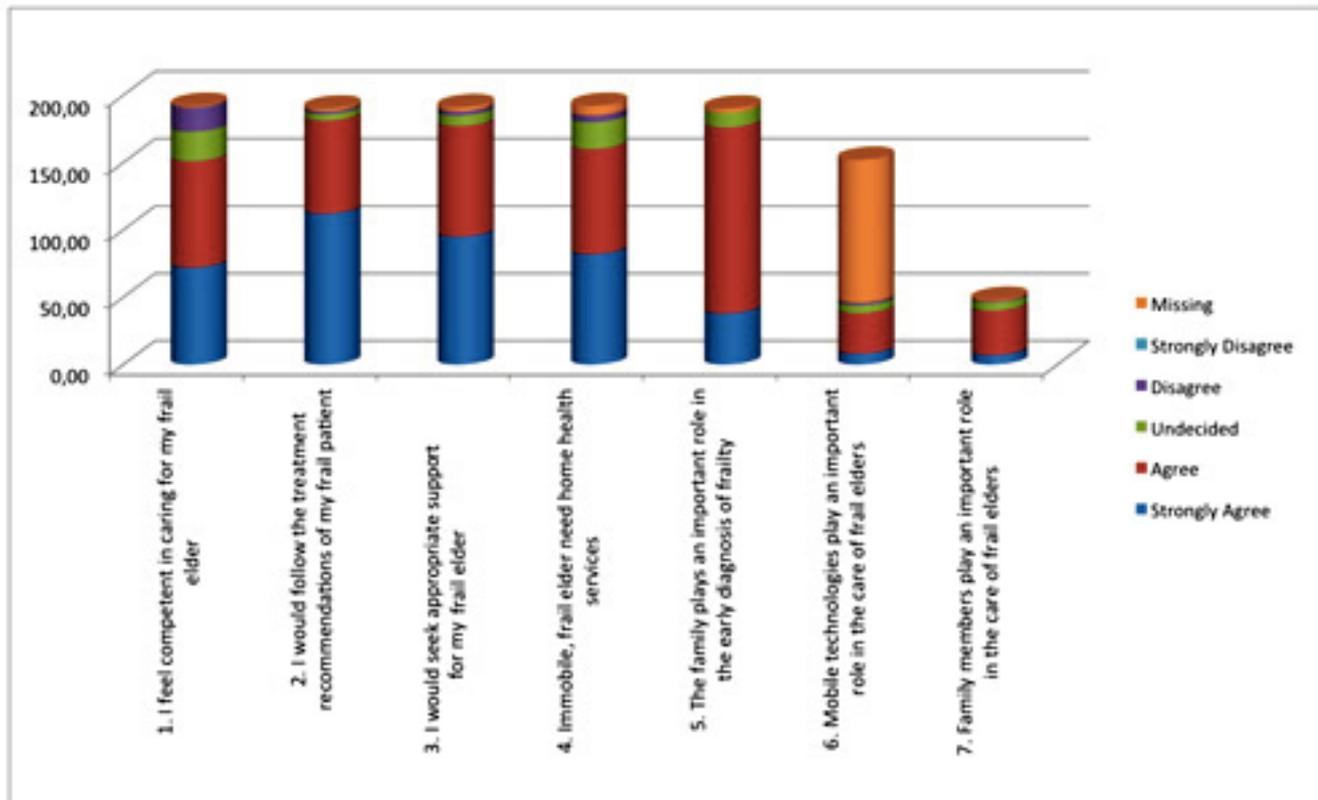
**Figure 1: Frequency of Total SARC-F Values**



**Figure 2: SARC-F Values of the frail elder**



**Figure 3: Attitudes of caregivers of frail patients**



**Discussion**

This study showed that the majority of frail people at home were suffering from at least one (0-4) chronic condition and 75% used more than four drugs (polypharmacy). According to SARC-F evaluation most were at pre-frail level. The domains on upper extremity strength and climbing stairs were the weakest, which could be improved with exercise. Short distance walking, transfers and falls were better. Participants were in agreement with the statement “I feel competent in caring for my frail elder”, “I would follow the treatment recommendations of my frail patient”, “I would seek appropriate support for my frail elder”, “Immobile, frail elder need home health services”, “The family plays an important role in the early diagnosis of frailty”, “Mobile technologies play an important role in the care of frail elders”, and “Family members play an important role in the care of frail elders”. Participation in the last two items was low.

The multi-morbidity of our patients in the study was not high. Cesari et al. report that multimorbidity might show a moderating effect on related health-care utilisation, than patients who are not diagnosed with multimorbid conditions (1). In this case, patients without multi-morbidity might be at risk of being undetected for frailty condition. But even if the patient is having a disability or comorbid condition the diagnosis of frailty does not take this into consideration. The more the number of chronic conditions the higher the risk of frailty has been observed (18). Heart failure, COPD, chronic kidney disease, urinary incontinence, and cognitive impairment might present higher prevalence of frailty (19).

But the relation of frailty to aging and chronic conditions is not clear (18).

According to SARC-F evaluation most were at pre-frail level. SARC-F has been shown to be a good predictor of poor muscle function, which has a good correlation with knee strength and grip strength. It also shows good correlation with FRAIL scale, which is a self-administered tool (17). In our study, the domains on upper extremity strength and climbing stairs were the weakest, which could be improved with exercise. Short distance walking, transfers and falls were better.

Our study showed a predominance of women with frailty, but this observation did not reveal any significant difference concerning SARC-F score, therefore indication that the level of frailty was equal in both genders. A higher prevalence of frailty in women has been also observed in the literature (1,19).

Most frail people at home were at pre-frail level (SARC-F Score 4-6=85.2%). In a study, which performed home care assessments 21.3% were found prefrail and 26.9% frail (20).

Caregivers were confident, compliant and empowered concerning the care for their patients. They are aware of home health care services and would also apply for these. Another study reported that caregivers, who cared for the frail were more prone to leave, but caring for pre-frail patients did not provoke this feeling (20), which is supported in our findings.

The determination of care needs of frail people is recommended due to its potential to improve the care of this risk group. The evaluation of self-perceived health needs might be a good starting point (21). The results of our study also provided valuable

information on the situation of patients, who cared for their frail elders at home. These findings have in our opinion two important implications. There is a potential need for interventions to prevent frailty in elderly people at home and a need to follow-up the health and burden of caregivers. Both approaches certainly exceed the capacity of family practice. These need to be managed by a multi-disciplinary healthcare and rehabilitation team, where the family physician should be a member. The family physician and his team could contribute to the management of this problem by screening caregivers, healthy (13,22), and possible frail elders, performing home visits, training caregivers concerning warning signs of frailty, and empowering elderly people concerning their own health (1,23).

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#### References

- Collard RM, Boter H, Schoevers RA, Oude Voshaar RC. Prevalence of frailty in community-dwelling older persons: A systematic review. *J Am Geriatr Soc* 2012;60:1487e1492.
- Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: Evidence for a phenotype. *J Gerontol A Biol Sci Med Sci* 2001;56:M146eM156.
- Cesari M, Prince M, Thiyagarajan JA, De Carvalho IA, Bernabei R, Chan P, Gutierrez-Robledo LM, Michel JP, Morley JE, Ong P, Rodriguez Manas L, Sinclair A, Won CW, Beard J, Vellas B. Frailty: An Emerging Public Health Priority. *Am Med Dir Assoc*. 2016 Jan 21. pii: S1525-8610(15)00766-5. doi: 10.1016/j.jamda.2015.12.016. [Epub ahead of print]
- Ain S, Maz?c?oglu MM, Mucuk S, Gocer S, Deniz ?afak E, Arguan!? S, Ozturk A. The prevalence of frailty and related factors in community-dwelling Turkish elderly according to modified Fried Frailty Index and FRAIL scales. *Aging Clin Exp Res*. 2015 Oct;27(5):703-9. doi: 10.1007/s40520-015-0337-0. Epub 2015 Mar 12.
- Eyigor S, Kutsal YG, Duran E, Huner B, Paker N, Durmus B, Sahin N, Civelek GM, Gokkaya K, Do?an A, G?unayd?n R, Toraman F, Cakir T, Evcik D, Aydeniz A, Yildirim AG, Borman P, Okumus M, Ceceli E; Turkish Society of Physical Medicine and Rehabilitation, Geriatric Rehabilitation Working Group. Frailty prevalence and related factors in the older adult-FrailTURK Project. *Age (Dordr)*. 2015 Jun;37(3):9791. doi: 10.1007/s11357-015-9791-z. Epub 2015 May 7.
- Çakmur H. Frailty among elderly adults in a rural area of Turkey. *Med Sci Monit*. 2015 Apr 30;21:1232-42. doi: 10.12659/MSM.893400.
- De Lepeleire J, Iliffe S, Mann E, Degryse JM. Frailty: An emerging concept for general practice. *Br J Gen Pract* 2009;59:e177-182.
- Prince MJ, Wu F, Guo Y, et al. The burden of disease in older people and implications for health policy and practice. *Lancet* 2015;385:549-562.
- Walters, K., Iliffe, S., Tai, S. S., & Orrell, M. (2000). Assessing needs from patient, carer and professional perspectives: The Camberwell Assessment of Need for Elderly people in primary care. *Age and Ageing*, 29, 505-510.
- Hoogendijk EO, Muntinga ME, van Leeuwen KM, van der Horst HE, Deeg DJ, Frijters DH, Hermsen LA, Jansen AP, Nijpels G, van Hout HP. Self-perceived met and unmet care needs of frail older adults in primary care. *Arch Gerontol Geriatr*. 2014 Jan-Feb;58(1):37-42. doi: 10.1016/j.archger.2013.09.001. Epub 2013 Sep 12.
- “Frailty at a glance. Accessed: 01.01.2016. Accessed at: <http://www.frailty.net/frailty-at-a-glance>.
- Fit for Frailty - consensus best practice guidance for the care of older people living in community and outpatient settings - a report from the British Geriatrics Society 2014.
- Yaman A, Yaman H. Frailty in Family Practice: Diagnosis and Management (in Turkish). *Ankara Med J*, 2015, 15(2):89-95.
- Morley JE, Cao L. Rapid screening for sarcopenia. *J Cachexia Sarcopenia Muscle*. 2015 Dec; 6(4): 312-314. Published online 2015 Nov 18. doi: 10.1002/jcsm.12079
- Cruz-Jentoft AJ, Baeyens JP, Bauer JM, Boirie Y, Cedersholm T, Landi F, et al. Sarcopenia: European consensus on definition and diagnosis: report of the European Working Group on Sarcopenia in Older People. *Age Ageing* 2010; 39: 412-423.
- Fielding RA, Vellas B, Evans WJ, Bhasin S, Morley JE, Newman AB, et al. Sarcopenia: an undiagnosed condition in older adults. Current consensus definition: prevalence, etiology, and consequences. International Working Group on Sarcopenia. *J Am Med Dir Assoc* 2011; 12: 249-256.
- Malmstrom TK, Miller DK, Simonsick EM, Ferrucci L, Morley JE. SARC-F: a symptom score to predict persons with sarcopenia at risk for poor functional outcomes. *Journal of Cachexia, Sarcopenia and Muscle* 2015; DOI: 10.1002/jcsm.12048
- Heckman G, Molnar FJ. Frailty: Identifying elderly patients at high risk of poor outcomes. *Can Fam Physician*. 2015 Mar;61(3):227-31.
- Lee L, Heckman G, Molnar FJ. Frailty: Identifying elderly patients at high risk of poor outcomes. *Can Fam Physician*. 2015 Mar;61(3):227-31.
- McKenzie K, Ouellette-Kuntz H, Martin L. Using an accumulation of deficits approach to measure frailty in a population of home care users with intellectual and developmental disabilities: an analytical descriptive study. *BMC Geriatr*. 2015 Dec 18;15:170. doi: 10.1186/s12877-015-0170-5.
- Hoogendijk EO1, Muntinga ME, van Leeuwen KM, van der Horst HE, Deeg DJ, Frijters DH, Hermsen LA, Jansen AP, Nijpels G, van Hout HP. Self-perceived met and unmet care needs of frail older adults in primary care. *Arch Gerontol Geriatr*. 2014 Jan-Feb;58(1):37-42. doi: 10.1016/j.archger.2013.09.001. Epub 2013 Sep 12.
- Yaman A, Yaman H. The Cognitive Evaluation of Elderly Individuals in Family Practice. *KONURALP TIP DERGISI* 2015; 7 (2): 121-123.
- Ilinca S, Calciolari S. The patterns of health care utilization by elderly Europeans: frailty and its implications for health systems. *Health Serv Res*. 2015 Feb;50(1):305-20. doi: 10.1111/1475-6773.12211. Epub 2014 Aug 19.

## **Depression in the older people: A perspective from Kurdistan of Iraq**

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### **ABSTRACT**

**Introduction:** Elderly populations are increasing world-wide. In the next few decades such increase will be more prominent in the developing world including Middle Eastern countries. Rate of morbidity is very much age related including depression. Impact of depression on health services is enormous world-wide. No data is available about how common depression is in Kurdistan and its correlates with gender, age, education level, economical status, marital status, housing, alcohol use, functional status and history of chronic medical illnesses.

**Aim:** To determine the prevalence of depression among elderly people in Kurdistan and identify any relation between depression in that population and gender, age, education level, Economical status, marital status, housing, alcohol use, functional status and history of chronic medical illnesses.

**Method:** The Geriatric Depression Scale -15(GDS-15) was translated to Kurdish and used for assessment of elderly patients, those above the age of 65. The researchers collected data via direct face to face interviews with the patient. 650 elderly subjects were questioned between January and June 2014.

**Results:** 64.2% of the study population scored at least 5 as per geriatric depression scale which is very significant. 22.8% had a score indicating they suffered moderate to severe depression. These findings had not been found in other similar studies in other countries. It was found to be statistically significantly that incidence of depression was higher in those who were older, female, had a higher level of education, from low socioeconomic status, unmarried and with chronic illness, a finding which is found in other studies

**Key words:** elderly, depression, Kurdistan

## Introduction

There is an increasing elderly population and as a result an increase in the number of elderly patients with significant morbidity putting a strain on health services. This is thought to be due to the decline in global fertility and family size as well as the decline of mortality in older populations. A community is regarded as relatively old when the percentage of the population aged 65 and above exceeds 10%(1).

In the year 2000 only some of the developed countries experienced population aging, but it is expected that by the year 2030 it will be experienced by all developed countries (2).

Currently depression has a prevalence of 5-10% in the community, and is now a major health problem in the elderly population(3). Whether due to differences in how people view mental health in different generations, most of the elderly patients who present with mood symptoms often present to their primary care practitioners as opposed to mental health professionals(4). It is now becoming such a prevalent illness that it is expected to be the largest cause of disability by 2030(5).

Symptoms experienced by patients with depression have been categorised in the ICD-10, with the key symptoms being a persistent sadness or low mood throughout most of the day, anhedonia, and fatigue(6). In order to diagnose someone with depression, they must also have 2 of the following symptoms; disturbed sleep, lack of concentration, low self-esteem, reduced or increased appetite, recurrent thoughts of death or suicide, agitation or retardation, and guilt.

Several risk factors have been noted to play a role in the aetiology of depression. Genetic factors have a major influence, as described by a paper which showed an estimated heritability of 37% in twin studies and family studies indicate a two- to threefold increase in lifetime risk of developing major depressive disorder among first-degree relatives(7, 8). However genetic factors are less likely to play a role in late-onset depression than in early onset depression. Here social circumstances may be a larger cause, with issues such as marital status, adverse life events, unemployment and impaired social support(9). Consistent with this perspective, numerous social relationship domains show an inverse association with depression and depressive symptoms(10). Studies have shown that whilst being single puts people at a higher risk of depression in women than men, being married leads to a higher risk of depression in men than women(11). Notable factors that are more prevalent in the elderly population than the younger population are chronic pain and medical illness. This is because older adults will be more likely to have substantial co-morbidities and may find these illnesses more psychologically distressing as they can lead to increased disability, decreased independence and a disruption of social networks. This is particularly the case for patients who have cerebrovascular disease, Parkinson's disease, epilepsy, and cancer.

Later life depression is a major health problem because it is associated with an increased risk of morbidity as shown above, increased risk of suicide, increased impairment be it physical cognitive or social, and greater self-neglect. Because of these,

there is an increased mortality associated with depression in the elderly. Data shows there are two peaks for ages at high risk of suicide, which are 25-30 year olds and the elderly population(12).

When looking in more depth at prevalence rates of depression in the elderly, it has been found that whilst major depression was rarer (1.8%), minor depression is more common (9.8%)(13). However it has also been found that the levels of detection and treatment of depression are low in the elderly, which is partly due to patient's refusal to speak freely about their depressive symptoms as a result of stigmatised beliefs, the fact that somatic symptoms are less useful to diagnose depression in the elderly than in the young, and partly to a lack of access to specialised mental health resources(14). There are several tools to screen for depression in the elderly population such as the Hamilton Rating Scale for Depression, the Geriatric Depression Scale and the Zung Self-Rating Depression Scale, however the most reliable and valid measure of geriatric depression is the GDS, with a specificity of 94%(15). There are two versions of the GDS, one which is 30 questions long and the other with 15 questions which was used in this study. Scores ranged from 0 to 15, with scores of 0-4 showing normal result, 5-9 indicating mild depression, and 10-15 indicating moderate to severe depression.

## Aims

- 1) To determine the prevalence of depression among elderly people in Kurdistan.
- 2) To study the correlates of depression in late life: Gender, Age, Education level, Economical status, Marital status, Housing, Alcohol use, Functional status and History of chronic medical illnesses

## Patients and Methods

This is a cross-sectional study of non-institutionalized participants, aged 65 or more years old, which is based on multistage random sampling in three main governorates of Kurdistan, Sulaimani, Hawler and Duhok.

Data was collected from January 2014 to June 2014 in face to face household surveys of 650 residents of urban and rural areas.

The structured interview included assessment of socio-demographic characteristics, mental and physical health, functional status, drug history, and living arrangements.

### Inclusion criteria:

1. Aged 65 years and above.
2. Those who speak Kurdish.

### Exclusion criteria:

1. Patients who had other psychological problems.
2. Those who had dementia.
3. Those who speak Arabic. (those who do not speak Kurdish)

The study was approved by the scientific and the ethical committee of the University of Sulaimani. The interviews were conducted by the researchers directly.

Verbal consent was taken from the participant.

Assessment of depression was done using GDS-15.

Scoring of the GDS-15 ranges from 0-15. Indicating the grade of the depression from no depression to mild, moderate and severe depression.

We translated the GDS-15 into Kurdish, then retranslated it to English, then compared them to ensure fewer grammar errors.

### Statistical analysis

Data concerning different variables were entered into an Excel office spreadsheet. Data analysis was done by using SPSS (version 20 software) computer program. The mean values, SD of the measurements were calculated. To test the relationship between different variables, comparisons were made using Chi-square testing. All P- values were based on 2-sided tests, and  $p < 0.05$  was considered statistically significant.

## Results

The mean + SD age of study population was 71.5 + 6.8 years. About 73.3% of them were below 75 years and 25.7% 75 years old and above. The majority of the study population were male (61.2%) and mostly people were married (68.9%). More than half of the study population were living in Sulaimani (53.5%), with the remainder living in Hawler and Duhok. Eighty seven percent of the study population were living in an urban area. In this study, most of the participants had 5 children and more (64.5%).

The majority of the study population lived in their own homes in the community (96.6%), with only 10.1% of participants living by themselves. Only 27.8% of the study population were in employment, with moderate economic status dominating (51.5%).

56.0% in this study were ex-smokers with 21.2% had never smoked. Most study participants (83.3%) were mobilised without any aids, 14.1% walked with a stick, and only 2.6% used other aids. About 6.1% of them had a history of drinking alcohol and 75.5% used medications for chronic diseases. Across the whole study 67.2% used 1-2 medications and 32.4% used 3 medications and above. The percentages of a positive history of diabetes, hypertension, stroke, ischemic heart disease, chronic obstructive pulmonary disease, Parkinson's disease, and other diseases were 26.2%, 46.6%, 6.5%, 10.8%, 11.2%, 7.4%, 30.5% respectively. The mean duration of disease in the study population was 2.3 + 0.7 years. The mean times of attacks of disease were 1.7 + 1.3. Despite multiple co-morbidities about 72% of the population had no history of hospital admission.

The results show that most of the study population had mild depression (41.4%), Table 1.

**Table 1: Depression scale according to the severity of depression**

Sex	Depression scale			Total
	No depression	Mild	Moderate to severe	
Male	176 44.2%	157 39.4%	65 16.3%	398 100.0%
Female	57 22.6%	112 44.4%	83 32.9%	252 100.0%

Although most of the study population who were selected from both the community and nursing homes had depression (scored 5 - 15), the relationship between place of abode and depression was still statistically not significant ( $P > 0.05$ ). The relationship between area of residence and depression scale was also studied and the association was statistically significant ( $P = 0.031$ ). Most of the study population in Sulaimani, Duhok, and Hawler had depression (scored 5 - 15), but the highest percentage was in Duhok 73.9%.

The relationship between gender and depression scale was statistically highly significant ( $P < 0.01$ ). Females had a higher percentage of depression (77.4%) than males (55.8%).

The association between gender and depression scale, according to the severity of depression, was also studied. The relationship was found statistically highly significant ( $P < 0.01$ ), i.e. females also had higher percentages of both (mild) and (moderate to severe) depression (44.4% and 32.9%) than males (39.4% and 16.3%) respectively, Table 2.

**Table 2: Gender and grade of depression**

Sex	Depression scale			Total
	No depression	Mild	Moderate to severe	
Male	176 44.2%	157 39.4%	65 16.3%	398 100.0%
Female	57 22.6%	112 44.4%	83 32.9%	252 100.0%

Chi= 39.70, df= 2, P value= 0.000

## Discussion

This cross sectional study demonstrates that there is a high prevalence of depression in the elderly, with 64.2% of participants affected, the majority of whom were suffering mild depression (41.4%) and just under a third (22.8%) moderately to severely depressed. Given the majority of the study population were male (61.2%) and the rate of depression in women was found to be significantly higher (77.4% vs 55.8%, P-value 0.001), this may even be a disproportionately low figure. Whilst this supports the hypothesis the notion that depression is a mounting issue, it is even more than would be expected. Furthermore, none of those identified as depressed had a pre-existing diagnosis of depression. Such high percentage might be the possibility of Geriatrics Depression scale questioning only has specificity and sensitivity in diagnosing depression if asked in English to an English speaking subjects with western social values and standard of education in society. However the questionnaire in this study was transplanted to Kurdish and the subjects were all Kurdish with middle-eastern social values and standard of education. Whether the subjects understood the reasoning for Geriatric Depression Scale questions when asked would have made a difference.

According to a systematic review of community-based studies on depression in later life from The Netherlands, higher percentages of depression were demonstrated in women(16). The overall prevalence rates were also markedly lower than found in this study, with the average at 13.5% and a range of 0.4-35%.<sup>9</sup> Given the review noted correlation of low socio-economic situation with depression and the discrepancy of prevalence between these studies, it is reasonable to hypothesize that there may have been higher incidence of such risk factors in this study population(16).

A review from Brazil, a more comparable developing country, showed that depression was more prevalent in the younger elderly (aged 65-74) with no pronounced difference between the sexes(17). As our study's participants were mostly under 75, with a mean age of 71.5, this might be one explanation for its finding such high levels of depression.

Compared to the study in Brazil, the prevalence of depression in Kurdistan was actually higher in late elderly age group (75 years and over) (74.3%) compared to early elderly age group (60.7%), P-value=0.002. Additionally, a similar study in The Netherlands revealed that the late elderly age group is at higher risk for developing depression(18).

That being said, the proportion of participants with mild vs moderate and severe depression is supported by an Iranian study of elderly people in a nursing home in Tehran that revealed higher rates of mild depression (50%) compared to moderate and severe depression (29.5% and 10.7% respectively)(19). This data has been mirrored in other cases, where a study in Canada also revealed more prevalent rates of mild depression compared to major depression (2.6% and 4% respectively)(20).

A study in Lebanon showed that elderly people with dementia were more likely to be depressed, with a prevalence of 41.2% compared to 14.5% in those without cognitive impairment(21). Though this study did not specifically comment on dementia, and given the low proportion that were from a nursing home it might be assumed to be low, it would be interesting to have this data. Nevertheless this supports the evidence that disease is a risk factor for depression, as shown in our study with higher rates of depression in those with COPD, Parkinson's, hypertension, diabetes, hospital admission within a year, reduced mobility and polypharmacy (with statistical significance shown for all but COPD).

An interesting point was that smoking did not correlate with mood, and those who drank alcohol had less risk of developing depression in our study (P-value 0.036). There is no data in this study and limited data in general on whether there is any correlation between religion and depression, but it may be a factor and even implicated in the link with alcohol, particularly in this study given the population is predominantly Muslim.

Residential and nursing home residents generally have poorer health than those in their own homes and so by this reasoning would be more at risk of depression. Supporting this, a study from Turkey exposed that depression among the elderly population living in nursing homes was indeed more prevalent than for those living at their own home, 41% and 29% respectively(22). However living in nursing home in this study did not increase the chance of depression (P-value 0.654), though this may be due to smaller number of nursing home participants.

The prevalence of depression among elderly Pakistanis in a similar cross-sectional study found higher rates of depression among those with multiple diseases, financial problems and taking numerous medications(23). A study in Brazil has concurred with this point, showing depression is significantly more common in the presence of medical diseases, poor functional capacity, and hospital admissions in the last 12

Table 3

	Depression scale		Total number of patients
	0-4	5-15	
<b>Age</b>			Chi= 9.95, df=1, P value= 0.002
65-74	190 (39.3%)	293 (60.7%)	483
≥ 75	43 (25.7%)	124 (74.3%)	167
<b>Level of education</b>			Chi= 40.24, df= 5, P value= 0.001
Illiterate	88 (25.6%)	256 (74.4%)	344
Primary	47 (41.6%)	66 (58.4%)	113
Secondary	27 (50.9%)	26 (49.1%)	53
Institute	23 (47.9%)	25 (52.1%)	48
University	39 (58.2%)	28 (41.8%)	67
Higher	9 (36.0%)	16 (64.0%)	25
<b>Economic status</b>			Chi= 50.10, df= 2, P value= 0.0001
Low	13 (11.7%)	98 (88.3%)	111
Moderate	115 (34.3%)	220 (65.7%)	335
High	105 (51.5%)	99 (48.5%)	204
<b>Marital status</b>			Chi= 24.25, df= 3, P value= 0.0001
Married	188 (42.0%)	260 (58.0%)	448
Unmarried	45 (22.3%)	157 (77.7%)	202
<b>Mobility</b>			Chi= 15.02, df= 2, P value= 0.001
Uses aids	24 (22.2%)	84 (77.8%)	108
Does not use aids	209 (38.8%)	330 (61.2%)	539
<b>Diabetes</b>			Chi= 14.97, df= 1, P value= 0.001
Present	40 (23.5%)	130 (76.5%)	170
Absent	192 (40.1%)	287 (59.9%)	479
<b>Hypertension</b>			Chi= 23.57, df= 1, P value= 0.001
Present	79 (26.1%)	224 (73.9%)	303
Absent	154 (44.4%)	193 (55.6%)	347
<b>COPD</b>			Chi= 4.47, df= 1, P value= 0.034
Yes	18 (24.7%)	55 (75.3%)	73
No	215 (37.3%)	362 (62.7%)	577
<b>Parkinson's disease</b>			Chi= 14.57, df= 1, P value= 0.001
Yes	5 (10.4%)	43 (89.6%)	48
No	228 (37.9%)	374 (62.1%)	602

months.<sup>10</sup> Furthermore, in a big Saudi study involving 7,970 people, depressive symptoms were found in about 40% and was also shown to be strongly associated with poor functional capacity and multiple medical diseases with polypharmacy<sup>(24)</sup>. Additionally higher prevalence of depression was seen in those with poor housing conditions, poor educational status, living in remote areas, the unemployed, divorced or widowed and

women<sup>(24)</sup>. This study highlighted that the single, widowed, divorced, those with poor economic status, the illiterate and interestingly also the highly educated, are more likely to develop depression. Further to this, those who rented houses rather than owned them were found to have a higher prevalence.

## Conclusion

This study highlights the fact that depression is a common condition in the elderly population of Kurdistan. Life expectancy in Kurdistan is already increasing and it will continue to do so as part of world-wide increase in the elderly population. Among the health problems of this age, affective disorders are becoming apparently common. In order to cope with these changes, improvement in or even establishment of health care services to this age group is an essential health strategy focus that needs to be on both under and post graduate training in care of the elderly mental health and public awareness about depression in the elderly. Health systems must be designed to meet the needs of the population served.

## References

1. Gavrilov L.A., Heuveline P., Aging of Population, The Encyclopedia of Population. New York, Macmillan Reference USA, 2003
2. United Nations, Department of Economic and Social Affairs, Population Division (2015), World Population Ageing, 2015
3. Pinquart M, Duberstein PR, Lyness JM. Effects of psychotherapy and other behavioral interventions on clinically depressed older adults: A meta-analysis. *Aging and Mental Health*. 2007;11:645-657.
4. Unützer J, Katon W, Sullivan M, Miranda J. Treating Depressed Older Adults in Primary Care: Narrowing the Gap between Efficacy and Effectiveness. *The Milbank Quarterly*. 1999;77(2):225-256.
5. Mathers C, Loncar D. Projections of Global Mortality and Burden of Disease from 2002 to 2030. *PLoS Medicine*. 2006;3(11):e442.
6. The ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic criteria for research [Internet]. 10th ed. Geneva: world health organisation; 2017 [cited 1 February 2017]. Available from: <http://www.who.int/classifications/icd/en/GRNBOOK.pdf>
7. Sullivan P, Neale M, Kendler K. Genetic Epidemiology of Major Depression: Review and Meta-Analysis. *American Journal of Psychiatry*. 2000;157(10):1552-1562.
8. Lohoff F. Overview of the Genetics of Major Depressive Disorder. *Current Psychiatry Reports*. 2010;12(6):539-546.
9. Barger S, Messerli-Bürgy N, Barth J. Social relationship correlates of major depressive disorder and depressive symptoms in Switzerland: nationally representative cross sectional study. *BMC Public Health*. 2014;14(1).
10. Cacioppo J, Hawkley L, Ernst J, Burleson M, Berntson G, Nouriani B et al. Loneliness within a nomological net: An evolutionary perspective. *Journal of Research in Personality*. 2006;40(6):1054-1085.
11. Umberson D, Montez JK. Social Relationships and Health: A Flashpoint for Health Policy. *Journal of health and social behavior*. 2010;51(Suppl):S54-S66.
12. Conwell Y, Van Orden K, Caine ED. Suicide in Older Adults. *The Psychiatric clinics of North America*. 2011;34(2):451-468. doi:10.1016/j.psc.2011.02.002.
13. Beekman A T, Copeland J R, Prince M J, Review of community prevalence of depression in later life, *The British Journal of Psychiatry* Apr 1999, 174 (4) 307-311; DOI: 10.1192/bjp.174.4.307
14. Lyness J, Cox C, Curry J, Conwell Y, King D, Caine E. Older Age and the Underreporting of Depressive Symptoms. *Journal of the American Geriatrics Society*. 1995;43(3):216-221.
15. Yesavage J, Brink T, Rose T, Lum O, Huang V, Adey M et al. Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*. 1982;17(1):37-49.
16. Beekman AT, Copeland JR, Prince MJ. Review of community prevalence of depression in later life. *The British Journal of Psychiatry* 1999; 174:307-311.
17. Luis BS, Baxter S, Gerada GF, Fabio G. Depression morbidity in later life: Prevalence and correlates in a developing country. *The American Journal of Geriatric Psychiatry* 2007;15(9): 790-799.
18. Licht-Strunk E, van der Kooij KG, van Schaik DJ F, van Marwijk HWJ, van Hout HPJ, de Haan M. and Beekman ATF. Prevalence of depression in older patients consulting their general practitioner in The Netherlands. *Int. J. Geriatr. Psychiatry* 2005; 20: 1013-1019.
19. Nazemi L, Skoog I, Karlsson I, Hosseni S, Hosseni M, Hosseinzadeh MJ, Mohammadi MR, Pouransari Z, Chamari M, Baikpour M. Depression, prevalence and some risk factors in elderly Nursing Homes in Tehran, Iran. *Iran Journal of Public Health* 2013; 42(6): 559-569.
20. Østbye T, Kristjansson B, Hill G, Newman SC, Brouwer RN, McDowell I. Prevalence and predictors of depression in elderly Canadians: The Canadian study of Health and Aging. *Chronic diseases in Canada* 2005; 26(4): 93-99.
21. El Asmar K, Chaaya M, Phung KTT, Atweh S, Ghosn H, Khoury RM, Prince M, Waldemar G, Anxiety among older adults in Lebanon: preliminary data from Beirut and Mount. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*, 2014; 10(4): 595-P595
22. Tsuang MT, Faraone SV. The genetics of mood disorders. Baltimore MD: Johns Hopkins University Press; 1990.
23. Ganatra HA, Zafar SN, Qidwai W, Rozi S. Prevalence and predictors of depression among an elderly population of Pakistan. *Ageing and Mental Health* 2008; 12(3): 349-356.
24. Al-shammari SA, Al-Subaie A. Prevalence and correlates of depression among Saudi elderly. *International Journal of Geriatric Psychiatry* 1999; 14(9): 739-747.

## Fear of Falling in the Elderly - an Emerging Syndrome

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### **ABSTRACT**

**Introduction:** Over the last two decades there has been a surge of interest in the phenomenon of fear of falling. This paper summarizes current data pertaining to the concept, epidemiology, assessment and management of fear of falling. In addition it elaborates on the relationship of fear of falling to other factors. Fear of falling is a conceivable cause of excess disability and an evolving public health problem.

Fear of falling has been reported in a high percentage of community-dwelling elderly who both do and don't have a history of falling. The aims of this review are to: (a) elucidate the definition of fear of falling; (b) clarify measurements of fear of falling based on its definition; and (c) describe the risk factors for fear of falling.

**Key words:** elderly, falls, fear of falling

### **Introduction**

Falls are one of the most common and problematic issues among older adults (1,2). Generally, one third of community dwelling older adults had one or more falls each year (3-6). Falls were the leading cause of injury-related visits to emergency departments in the United States (7). Using data from the National Health Interview Survey, approximately 45% of all injuries in the home environment leading to medical attention were falls (8). In fact, 20% of nonfatal home falls that require medical attention occur in the over 75 age group (8).

Moreover, it has been noted that among individuals who fall, there is a high percentage (40-73%) who have a fear of falling. It has also been reported that up to half of older adults who have never fallen have a fear of falling (3,9). Fear of falling, whether or not related to a previous fall, can have a major impact on older adults. Fear of falling may be a reasonable response to certain situations, leading elderly persons to be cautious, and can contribute to fall prevention through careful choices about physical activity (10). Within this context, fear represents a reasonable reaction to possible danger and has few negative consequences as long as physical and social mobility remains unaffected. However, the fear of falling can initially present or progress beyond this point to become a debilitating condition.

In particular, fear of falling has been associated with negative consequences such as reduced activity of daily living (11,12), reduced physical activity (2,13-15), lower perceived physical health status (16), lower quality of life (2,11), and increased institutionalization (2,11)

## Evolution of the Concept

Despite the importance of the percentage and the consequences of fear of falling, its definition is still vague and warrants clarification.

In the late 1970s, Marks and Bebbington described “space phobia” in four elderly women who had intense fear of falling “when there was no visible support at hand or on seeing space cues while driving” (17). These authors speculated that space phobia “might be a hitherto unrecognized syndrome or an unusual variant of agoraphobia”. Fear of falling has gained increasing attention in the public health literature over the past two decades. The concept was introduced by Bhala, O, Donnell, and Thopil (18) who used the term “ptophobia which means a phobic reaction to standing or walking. Murphy and Isaacs (1982) called it the “post-fall syndrome” in which elderly people who had fallen developed severe anxiety that affected their ability to stand and walk unsupported (19). Subsequent research demonstrated that elderly people can develop fear of falling even when they have not fallen (20-22). Other authors have stated that fear of falling means a patient’s loss of confidence in his or her balance abilities (21,23). Tinetti and Powell (24) depicted fear of falling as a progressing worry about falling that at last prompts evasion of the execution of daily activities. As indicated by Tidieksaar (25), fear of falling alludes to an un-sound absence of movement evasion because of dread of falling.

Over the years, various definitions of fear of falling have evolved. Some authors have focused purely on the fear (26), while others have included avoidance of activities as a consequence of the fear (27). A few authors have eschewed the term “fear” and have instead focused on the person’s loss of confidence in balance and walking (28,29). Currently the term fear of falling is used to describe an exaggerated concern of falling that leads to excess restriction of activities. The fearful older adult narrows their world, resulting in isolation and ultimately physical and functional decline.

So the fear of Falling (FoF) or Post Fall Syndrome or Psychomotor Regression Syndrome (PRS) is defined as: “Decompensation of the systems and mechanisms implicated in postural and walking automatisms (30)”. It appears either insidiously due to an increase of frailty or either brutally after a trauma (fall) or an operation. This syndrome is composed of a combination of neurological signs, motor symptoms and psychological disorder.

## Epidemiology

Among community-dwelling elderly, fear of falling is frequent, with prevalence ranging from 21 to 61% in community-based epidemiologic studies (3,20, 26-29, 30). Community studies that are limited to elderly people who have actually fallen have reported prevalence rates of 32-83% (31,32). Strikingly, 33-46% of community-dwelling elders who have not fallen also report fear of falling (20,21).

Among selected populations, fear of falling has been found among 46% of nursing home residents, (33) 47% of persons attending a dizziness clinic,(34) 66% of patients on a rehabilitation ward,(35) and 30% of hospitalized elderly patients without a specific diagnosis (40% of those who had fallen and 23% of

those who had not fallen).(11). Some of these prevalence rates may actually be underestimates, since people who are most fearful may be less likely to participate in research studies.

Among elderly persons who are afraid of falling, up to 70% (20,27,26,30,35) acknowledge avoiding activities because of this fear. In some cases, individuals become housebound as a result of their fear. Activity restriction is, in itself, a risk factor for falls because it can lead to muscle atrophy, deconditioning and poorer balance (21, 31). Curtailment of activities can also lead to social isolation (36). Thus, fear of falling can contribute to both functional decline and impaired quality of life.

Although a higher prevalence of 40-73% has been reported in people who have fallen, studies have shown that up to half of people with fear of falling have not experienced a fall. These people have likely had a friend or family member or fellow nursing home resident experience a fall and have seen the medical and social consequences for that person. (3,9,26,36).

## Manifestation

### Motor symptoms

#### Standing

- “Retropulsion” (gravity center kept backward)
- Posterior instability (tendency to fall backward)
- Both leading to postural compensation (Knees/hips kept flexed and bend forward) and to this traditional posture:

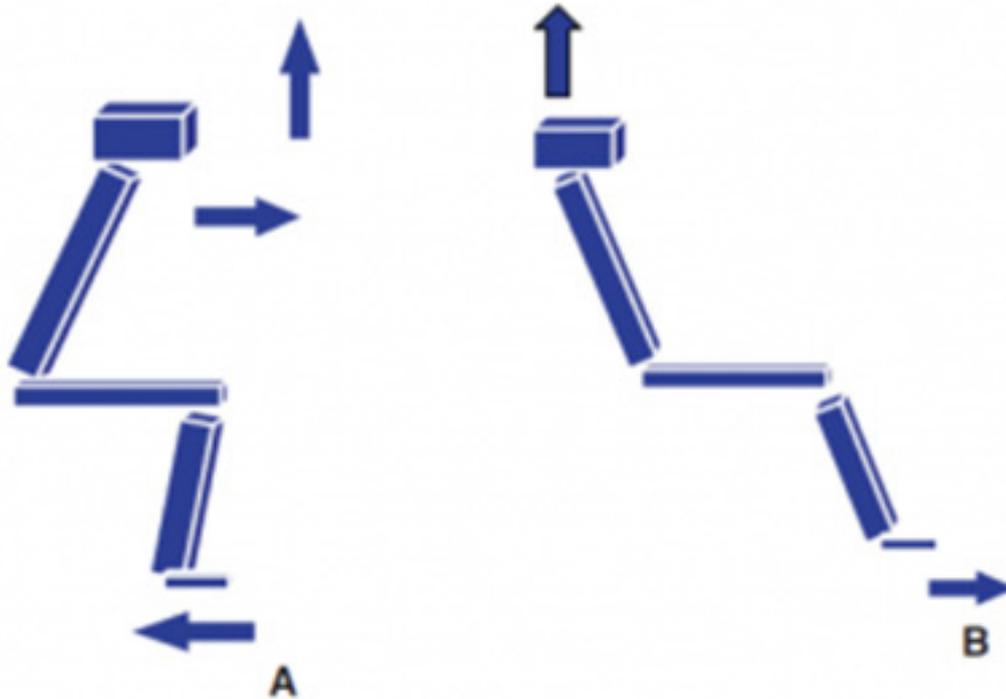


## Typical anterior/flexed posture

### *Sitting*

- Impairment of sitting posture is less visible but as problematic
- Patients with PRS keep their buttocks forward, shoulders backward and feet far from the seat (image B)
- However, to stand up we need to transfer our gravity center forward (image A)
- Therefore, standing up is difficult/impossible without exterior help for patients with PRS (image B)

A: normal way of standing up B: wrong way of standing up



### *Walking*

It is difficult for them to

- Initiate the walk (they look like they freeze)
- Difficulty to avoid obstacle and to turn

### *Gait*

- length of the step
- knees and hips flexion ( trip risk)
- heel strike
- time spend in bipodal stance ( posterior instability)

### *Neurological signs*

- o Alteration or absence of postural adaptation (the person is not able to balance themselves and to stand up without falling).
- o Protective reaction (put their arms in front when falling to slow the fall)

### *Psychological disorder*

Patient with PRS present with

- Anxiety/phobia of verticality (afraid to stand up)
- Loss of self-confidence/self-esteem
- Loss of motivation associated with a reduction of their activity and social interaction

Therefore, they end up in a vicious circle

- They are afraid to move
- They move less
- They become even less able to move and even more afraid

### *Evaluation*

Measurement issues relating to fear of falling

A number of measures have been developed to measure fear of falling. Each of these measures uses different definitions and premises. Fear of falling measures are conceptualized based on the definition of fear of falling, "fearful anticipation of a fall" (37), whereas self-efficacy and confidence measures are based on the individual's confidence or belief in their ability to perform specific activities without losing balance or falling.

The FES (28) and Activities-Specific Balance Confidence Scale (ABC) (38) were developed for measuring fall related self-efficacy. The FES and ABC scales have been used repeatedly with community dwelling older adults (11,13,39-45). Fall-efficacy and confidence measures, however, may not be a true conceptualization of fear of falling because it is possible that older adults feel confident in their abilities to engage in an activity without "being concerned" about losing balance or falling, but that they could still be fearful of having a fall. Additionally, a fear-related self-efficacy measurement may not be a true conceptualization as the relationship between the fear of falling and the self-efficacy to engage in activities is likely to be strongly influenced by physical function and health status.

### Fear of Falling Measures

#### Single item question

The simple question, "Are you afraid of falling?" was used initially in-research studies with a "yes/no" or "fear/ no fear" response format (3,40,46). The advantage of this format is that it is straight forward and easy to obtain responses. It is limited, however, as it is not possible to detect variability in degrees of fear (47), and has an uncertain relationship to behavior (28). In an attempt to overcome this limitation some researchers have utilized this single item question with a Likert scale response pattern (i.e. "not at all afraid," "slightly afraid," "somewhat afraid," and "very afraid") to reflect the degree of fear (45,48,49).

### Survey of Activities and fear of falling in the Elderly

The new instrument Survey of Activities and fear of falling in the Elderly (SAFFE, Table 1) scale was developed to assess the role of fear of falling in activity restriction (50). The SAFFE uses the premise that there are negative consequences to fear, such as activity restriction or poor quality of life. The instrument evaluates fear of falling through the performance of 11 activities of daily living, instrumental activities of daily living, mobility tasks, and social activities (i.e., taking a shower, going to the store, taking public transportation, and going to movies or shows). Based on the assumption that activity avoidance may be an early sign of fear of falling, the SAFFE measures information about participation in exercise activities and social activities. The SAFFE has 11 activity items, and for each activity several questions are asked: (a) Do you currently do it? (yes or no); (b) If you do the activity, when you do it how worried are you that you might fall? (0 not at all worried, 1 a little worried, 2 somewhat worried, and 3 very worried); (c) If you do not do the activity, do you not do it because you are worried that you might fall? (0 not at all worried; 3 very worried); (d) If you do not do the activity because of worry, are there also other reasons

why you do not do it? (if yes, specify); (e) For those who are not worried, why do you not do it? (specify); (f) Compared with 5 years ago how often do you do it? (1 more than you used to, 2 about the same or 3 less than you used to). However, SAFFE is so complicated that it is not easy to administer to the elderly. Also, it is difficult to compute the SAFFE score, because it is made up of a skip pattern (51). The questions (a), (b), and (f) determine activity level, fear of falling status, and activity restrictions, while questions (c), (d), and (e) examine the number of activities that are not done because of other reasons in addition to fear of falling. In addition, the scoring range is 0-33. SAFFE is not perfect since the instructions on measurement do not elucidate whether activity and social activity should be divided when it is computed. Furthermore, there is no definition of a cut off score that means fear of fall vs. non fear of fall status. Moreover, SAFFE measures the degree that elderly feel worry during periods of activity, while fear of falling while inactive status is not measured.

### The University of Illinois at Chicago Fear of Falling Measure

Veloza and Peterson (52) developed the University of Illinois at Chicago Fear of Falling Measure (UIC FFM) for the community dwelling elderly. It comprises 16 items and centers on the older adults' ability to perform activities of daily living. The measure asks the participants to indicate how worried they would be if they were to perform the activities. It is a four-point rating scale. The evidence of reliability of the UIC FFM was provided by alpha coefficient ( 0.93) (Veloza & Peterson), but the authors did not report any evidence of validity.

#### Fall efficacy measures

Fall efficacy has been used to measure fear of falling in many studies. However, as noted before, its conceptualization differs from fear of falling. Tinetti et al. (28) developed the FES. The FES is a 10 question scale, and the scores are summed to give a total score between 0 and 100. Although many authors have used the FES scale (11,13,40-42,44,45,53), the measurements are limited because the 10 items measure only simple indoor activities. The FES, therefore, is not appropriate for use with older adults who spend time outside the home and have high mobility (47). An upgraded version, the modified FES (mFES), contains an additional four questions about outdoor activities (29), and has been used in various settings (40).

#### Activities-Specific Balance Confidence Scale

Powell and Myers (38) developed the ABC for older adults with greater functioning, based on the definition of fall related self-efficacy as the FES. It is a 16-item questionnaire with a visual analog scale (0-100). The 16-item activities are more specific than those of the FES. The activities were performed outside of the home and were more challenging than those in the FES (16,43).

Fear of falling is one of the major issues relating to the overall health of older adults. Fear of falling leads to physical and psychological problems, and despite the large number of older adults who suffer from the serious consequences of fear of fall-

its definition is still vague and warrants clarification. From the literature review, it can be seen that the most widely used fear of falling measurements involve the evaluation of fear of falling and fall efficacy. These measurements need to be used appropriately, based on the correct definition of fear of falling. Normally, fear-related efficacy was measured with exact measurements, such as FES and ABC (54,55). However, when the study related to the measurement of fear of falling, these measurements were often misused. Fear of falling was regularly measured with either fear of falling instruments (50) or fall efficacy measurements (56-58).

Due to the misinterpretation and the misapplication of measurements, the percentage of people suffering from fear of falling may have been underestimated or overestimated. Therefore, in future research the question of whether or not the FES accurately measures fear of falling must be considered. This can be accomplished by applying both fear of falling measurements and fall efficacy instruments to the same study participants. Moreover, nurses working closely with older adults need to be aware of the different definitions of fear of falling and the FES. Although older adults may have a fear of falling, they may also have confidence in their capabilities to perform activities without falling. Therefore, nurses may be able to encourage sedentary older adults who have a fear of falling to perform specific activities that reinforce confidence with regard to not falling. Differentiating between the meanings of fear of falling and fall efficacy is very important when encouraging older adults to participate in certain activities. In short, fear of falling needs to be measured accurately with fear of falling instruments. In addition, fall efficacy or confidence as it relates to activities that can be performed without fear of falling should be measured by using the FES in an effort to clearly define each variable.

## Assessment Tools

Several approaches to the assessment and measurement of fear of falling have been used and may partly explain the variability in the prevalence rates reported above. The easiest way is to ask subjects the following question: "Are you afraid of falling?" An annex of this definite method is to rate the severity of fear, ranging, for example, from mildly, moderately or very afraid.

Though a direct question is simple, up-front and simply produces prevalence estimates, this method lacks the sensitivity of a continuous measure. Tinetti and colleagues operationalized fear of falling as low perceived self-efficacy. Self-efficacy refers to an individual's perception of capabilities within a particular domain of activities (59). Tinetti, et al. developed the Falls Efficacy Scale (FES), a 10-question self-rated scale assessing a person's confidence in performing activities in the home (e.g., "How confident are you that you can take a bath or a shower without falling?"). (28). The subject rates each question from 1 to 10, resulting in a summative global score whereby a higher score is reflective of lower confidence. The scale has been modified for patients with strokes [FES (S)] (60) and to include outdoor activities (MFES). (29).

In 1995, Powell and Myers developed the Activities-specific Balance Confidence Scale (ABC); also based on the self-efficacy concept (38). This 16-item scale contains a broader range of activity difficulty and more detailed activity descriptors than the FES. It has greater reliability than the FES in detecting loss

of confidence in seniors who are otherwise highly functioning (38).

Lachman, et al. developed the Survey of Activities and Fear of Falling in the Elderly (SAFE, table 1), which examines 11 activities of daily living, instrumental activities of daily living, mobility tasks and social activities, using the questions listed in Table 1 for each activity (50). In contrast to the FES, the SAFE does not require subjects to make hypothetical responses about activities that they do not actually perform.

### Associated Factors and Comorbidities

Only 10-15% of falls result in fractures or soft tissue injuries severe enough to cause immobilization or hospitalization (61). Thus, factors other than physical injury also play a role in the development of fear and restriction of activities following single or repeated falls. To date, studies that have examined correlates of fear of falling have primarily focused on demographic, physical and social variables. Multiple variables have been found to be associated with fear of falling, including those listed in Table (2) (20,27,28,32,34,35). Thus, like falling itself, fear of falling is multifactorial in origin.

A few studies have also employed depression and anxiety screening scales (4, 7,9,14,16,17). Most, but not all, of these studies found more severe scores of depression and/or anxiety among persons with fear of falling compared with those who are not fearful. In these studies, depression and anxiety scores were highly correlated. Downton and Andrews found that, of eight variables studied, depression and anxiety scores were the two most important predictors of chronic dizziness which, in turn, was significantly associated with fear of falling (20). One study found that fallers with a fear of falling were significantly more likely to score above 11 on the Geriatric Depression Scale (26). This score is frequently used as a cut-off point to indicate mild or more severe depression, raising the possibility that minor or major depressive disorders may be more prevalent among fearful than non- fearful fallers. However, to date there has been no attempt to actually determine, by means of diagnostic interviews, whether depressive and anxiety disorders are more prevalent in fearful fallers. Furthermore, there has been no attempt to determine whether specific personality traits or coping styles predict fear of falling.

### Risk factors for fear of falling

Several factors that have been reported to influence fear of falling including:

#### Demographic influence

Increased age has been linked to increase in the fear of falling (3,9,48). However, in studies by Kressig et al. (41) and Andresen et al. (56), no significant correlation was found between age and fear of falling. In addition, women were regularly more likely to be fearful of falls than men in several studies (3,15).

#### History of falls

Having had a previous fall was consistently correlated with a fear of falling (3,15,48,56). Furthermore, multiple fallers and those who had a harmful fall had a higher chance of developing a fear of falling than single fallers (15). However, there are also individuals who have not fallen who account fear of falling (3,9,48).

**Physical health**

Fear of falling has been considerably associated with health status (3,11,15). Those with lower alleged health status were more liable to have a fear of falling (48). For instance, Cumming et al (11) completed a prospective study over 1 year with older adults who had received medical intervention at the baseline of study. They found that those who had low fall-related self-efficacy were more likely to have a poorer health status measured by health-related quality of life measures and SF-36. Furthermore, in a study by Fletcher & Hirdes, (15) poor perceived health status was found to be a risk factor for activity limitations due to fear of falling (odds ratio 1.82; 95% confidence intervals 1.47-2.26).

**Morbidity**

Fear of falling is more prevalent in persons with a history of neurological problems (i.e., stroke and Parkinson's disease), cardiac disease, arthritis, osteoporosis, cataracts/glaucoma, visual and cognitive impairments, and acute illness (3,11,15,56,61,62). These medical ailments effect balance and function and hence augment the individual's fear of falling. Patients with impaired gait had a greater risk of fear of falling (15,31). In addition, impaired mobility was associated with a fear of falling (56,61).

**The impact of mood on fear of falling**

Depression and anxiety were emphatically connected with fear of falling among community dwelling older adults (41,48,56,63-65). In spite of the fact that a causal connection amongst depression and fear of falling can't be deduced from cross-sectional investigations, it is likely that fear of falling can prompt movement limitation or social separation, which at that point brings about discouragement in the elderly (64,66). It has likewise been speculated that depression and/or the prescription being take to treat depression adds to falls and a related fear of falling (64).

**The impact of exercise on fear of falling**

Fear of falling decreases in older individuals engaged in exercise programs, including activities to ameliorate lower limb strength, balance, stability, and continuance, or Tai Chi exercises (16,42,45,53,67). It is likely that these activities upgraded lower leg quality, strolling speed, adjust control, and physical capacity, which diminished fall rates, and diminished the probability of a related fear of falling.

**Cognitive status**

Fear of falling is predominant in older adults, and may be even more common in populations known to have balance problems, such as is the situation in individuals with Parkinson's disease and dementia patients (68).

While cognitive status has not reliably been related with fear of falling, the reality of the matter is that some studies point to cognitive status just like a critical factor in connection to fear of falling among older adults in the community (31,68). Specifically, fear of falling was more apparent in Parkinson's patients with gait impairment than in healthy older adults (68).

However, fear of falling with active restriction was not related with older adults' reported memory problems (12,15). It might be that fear is extremely founded on cognitive function, but asking questions relating to fear of falling to persons with dementia poses a problem since their answers may not be valid.

Despite the high prevalence of fear of falling and its associated morbidity, there has been little research into its management.

Two fall prevention studies included falls efficacy or fear of falling as a secondary measure. Tinetti, et al. found that a multiple risk factor intervention strategy resulted in a significant reduction in risk of falling and a significant improvement in FES scores among elderly people living in the community (69). On the other hand, Reinsch, et al. found that a combination of exercise, education and relaxation training did not have a significant effect on the probability of falling or fear of falling (70).

Three randomized controlled trials have examined the effect of interventions on falls efficacy and/or fear of falling as the primary outcome variable. Tennstedt, et al. evaluated an intervention specifically designed to reduce fear of falling and improve self-efficacy in a population of community-dwelling elderly who reported restriction in activity due to fear of falling (53). Their cognitive behavioural intervention program had an immediate, but modest, effect in improving subjects' self-efficacy and increasing their level of intended activity. However, these positive effects were not present at six-month follow-up. Wolf, et al. found a statistically significant reduction in fear of falling, as well as risk of falling, among elderly people randomized to 15 weeks of Tai Chi compared to those in the control condition (45).

Finally, Cameron, et al. found that the use of hip protectors in elderly women who had fallen in the previous year had no statistically significant effect on fear of falling, but was associated with improved self-efficacy (40).

On the basis of these studies, with their varied interventions and disparate results, it is difficult to derive recommendations regarding the management of fear of falling. The multifactorial nature of fear of falling suggests that a multifaceted approach utilizing both psychological and physical interventions may stand the best chance of success, but this remains to be determined in future research. Furthermore, it is quite possible that the approach to managing fear of falling in non-fallers will differ from the approach needed for fallers.

A successful management for patient suffering from Post fall syndrome is composed of:

- o Exercise to stimulate movement and strength
- o Postural work to fix the compensation
- o Teaching patients the right maneuver on the change of position to explain the easy and safe way to stand up, sit down, and lie down.
- o Attempt to correct their gait

There are a larger number of modifiable risk factors (i.e., exercise, physical health, morbidity, history of falls, and mood status) than non-modifiable risk factors (i.e., demographic status and cognitive status) related to fear of falling.

Therefore, the team working with older adults must work with them to make positive changes to these modifiable factors by improving and augmenting their physical activity. Since, depression is one of the

critical issue linked to fear of falling (71) any strategy to decrease fear of falling should include depression management. A number of authors carried a number of intervention studies with the aim of preventing or managing fear of falling in older adults. It was clear that exercise programs, including strength training, balance, endurance, mobility, and Tai-Chi programs, have confirmed effectiveness in decreasing fear of falling in older adults (39,42,43,45,53,71,72,73). Furthermore, a meta-analysis revealed that exercise intervention is an effective way to diminish fear of falling (58). In this study, combined exercise programs with education and cognitive intervention were more effective than exercise programs alone. Furthermore, exercise within facility was less effective than home or community-based exercise (58).

Therefore making information about fall-related fear to older adults available within the community will entice fallers to minimize fall-related accidents and manage fear of falling by taking part in regular physical activities.

### Future directions

Fear of falling is one of the major issues relating to the overall health of older adults. Fear of falling leads to physical and psychological problems, and despite the large number of older adults who suffer from the serious consequences of fear of falling, its definition is still vague and warrants clarification.

Further research is needed in order to better understand the genesis of fear of falling, improve its management and diminish its consequences. It would be of interest to clarify variables that may predict which individuals develop fear of falling as an "appropriate" or "protective" response to falls versus those in whom the fear is clearly pathological. A greater research focus on the psychological and psychiatric correlates of fear of falling would be helpful in this regard. Furthermore, it will be important to determine whether interventions that place greater emphasis on the specific treatment of depression, anxiety, negative cognitions and avoidant behaviors can result in improved outcome among older people with fear of falling.

### References

1. American Geriatrics Society, British Geriatrics Society, & American Academy of Orthopedic Surgeons Panel on Falls Prevention. (2001). Guideline for the prevention of falls in older persons. *Journal of the American Geriatrics Society*, 49, 664-672.
2. Li, F., Fisher, J., Harmer, P., McAuley, E., & Wilson, N. L. (2003). Fear of falling in elderly persons: Association with falls, functional ability, and quality of life. *Journal of Gerontology: Psychological Sciences & Social Sciences*, 58, 283-290.
3. Friedman SM, Munoz B, West SK, et al. Falls and fear of falling: Which comes first? A longitudinal prediction model suggests strategies for primary secondary prevention. *J Am Geriatr Soc* 2002;50:1329-35.
4. Means, K. M., Rodell, D. E., & O'Sullivan, P. S. (2005). Balance, mobility, and falls among community-dwelling elderly persons. *American Journal of Physical Medicine & Rehabilitation*, 84, 238-250.

5. Tinetti, M. E. (2003). Preventing Falls in Elderly Person. *The New England Journal of Medicine*, 348, 42-49.
6. Tromp, A. H., Pluijm, S. M. F., Smit, J. H., Deeg, D. J. H., Bouter, L. M., & Lips, P. (2001). Fall risk screening test: A prospective study on predictors for falls in community-dwelling elderly. *Journal of Clinical Epidemiology*, 54, 837-844.
7. Fuller, G. F. (2000). Falls in the elderly. *American Family Physician*, 61, 2156-2168.
8. Runyan, C. W., Perkis, D., Marshall, S. W., Johnson, R. M., Coyne-Beasley, T., Waller, A. E., et al. (2005). Unintentional injuries in the home in the United States: Part II: Morbidity. *American Journal of Preventive Medicine*, 281, 80-87.
9. Murphy, S. L., Dubin, J. A., & Gill, T. M. (2003). The development of fear of falling among community-living older women: Predisposing factors and subsequent fall events. *The Journal of Gerontology: Biological Sciences and Medical Sciences*, 58, 943-947.
10. Murphy, S. L., William, C. S., & Gill, T. M. (2002). Characteristics associated with fear of falling and activity restriction in community-living older persons. *Journal of the American Geriatric Society*, 50, 516-520.
11. Cumming RG, Salked G, Thomas M, et al. Prospective study of the impact of fear of falling on activities of daily living, SF-36 scores, and nursing home admission. *J Gerontol* 2000;5:M299-305.
12. Martin, F. C., Hart, D., Spector, T., Doyle, D. V., & Harari, D. (2005). Fear of falling limiting activity in young-old women is associated with reduced functional mobility rather than psychological factors. *Age and Ageing*, 34,281-287.
13. Bruce, D. G., Devine, A., & Prince, R. L. (2002). Recreational physical activity levels in healthy older women: The importance of fear of falling. *Journal of the American Geriatrics Society*, 50, 84-89.
14. Delbaere, K., Crombez, G., Vanderstraeten, G., Willems, T., & Cambier, D. (2004). Fear-related avoidance of activities, falls and physical frailty. A prospective community-based cohort study. *Age and Ageing*, 33, 368-373.
15. Fletcher, P. C. & Hirdes, J. P. (2004). Restriction in activity associated with fear of falling among community-based seniors using home care services. *Age and Ageing*, 33, 273-279.
16. Brouwer, B., Musselman, K., & Culham, E. (2004). Physical function and health status among seniors with and without a fear of falling. *Gerontology*, 50, 135-141.
17. Marks I, Bebbington P. Space phobia: syndrome or agoraphobic variant? *BMJ* 1976;2:345-7.
18. Bhala, P., O, Donnell, J., & Thoppil, E. (). Ptophobia: Phobic fear of falling and its clinical management. *Physical Therapy*, 1982; 62(2),187-190.
19. Murphy J, Isaacs B. The post-fall syndrome: A study of 36 elderly patients. *Gerontology* 1982;28:265-70.
20. Dowton JH, Andrews K. Postural disturbance and psychological symptoms amongst elderly people living at home. *Int J Geriatr Psychiatry* 1990;5:93-8.
21. Maki BE, Holliday PJ, Topper AK. Fear of falling and postural performance in the elderly. *J Gerontol* 1991;46:M123-31.
22. Lawrence RH, Tennstedt SL, Kasten LE, et al. Intensity and correlates of fear of falling and hurting oneself in the next year. *J Aging Health* 1998;10:267-86.
23. Tinetti, M. E., Speechley, M., & Ginter, S. F. (1988). Risk factors for falls among elderly persons living in the community. *New England Journal of Medicine*, 319,1701-1707.

<b>Table 1.</b>	
<b>Survey of Activities and Fear of Falling in the Elderly</b>	
<b>(SAFE)</b>	
1) Do you currently do the activity? (yes/no)	
2) If you do the activity, when you do it how worried are you that you might fall? (not at all, a little, somewhat, or very worried)	
3) If you do not do the activity, do you not do it because you are worried that you might fall? (not at all, a little, somewhat, or very worried)	
4) If you do not do the activity because of worry, are there also other reasons that you do not do it? (specify)	
5) If you are not worried, what are the reasons you do not do it? (specify)	
6) Compared to five years ago, would you say that you do it more, about the same or less than you used to?	
<b>Activities of Daily Living Assessed</b>	
Go to the store	Visit a friend or relative
Prepare simple meals	Reach for something over your head
Take a tub bath	Go to a place with crowds
Get out of bed	Walk several blocks outside
Take a walk for exercise	Bend down to get something
Go out when it is slippery	

<b>Table 2: Factors Associated with Fear of Falling</b>
Older age
Being female
Experience of previous falls
Falls requiring medical attention
Falls resulting in fracture
Falls that occur in circumstances other than a slip or trip
Delay getting up after a fall
Recency of a fall
Decreased mobility
Poor performance on tests of balance
Chronic dizziness
Higher levels of pain
Living alone or having fewer social contacts
Poor life satisfaction
Factors suggesting frailty in the elderly, such as needing assistance to climb stairs, poor vision limiting walking, use of an assistive ambulatory device, restriction in instrumental activities of daily living and poor self-rated health

24. Tinetti, M. E. & Powell, L. (1993). Fear of falling and low self-efficacy: A case of dependence in elderly persons. [Special Issue] *Journal of Gerontology*, 48, 35-38.
25. Tideiksaar, R. (2002). *Falling in Older People: Prevention and Management*. (3rd ed.), New York: Springer.
26. Arfken CL, Lach HW, Birge SJ, et al. The prevalence and correlates of fear of falling in elderly persons living in the community. *Am J Public Health* 1994;84:565-70.
27. Howland J, Lachman ME, Peterson EW, et al. Covariates of fear of falling and associated activity curtailment. *Gerontologist*. 1998;38:549-55.
28. Tinetti ME, Richman D, Powell L. Falls efficacy as a measure of fear of falling. *J Gerontol* 1990;45:P239-43.
29. Hill KD, Schwartz JA, Kalogeropoulos AJ, et al. Fear of falling revisited. *Arch Phys Med Rehabil* 1996;77:1025-9.
30. Tinetti ME, Mendes de Leon CF, Doucette JT, et al. Fear of falling and fall-related efficacy in relationship to functioning among community-living elders. *J Gerontol* 1994;49:M140-7.
31. Vellas BJ, Wayne SJ, Romero LJ, et al. Fear of falling and restriction of mobility in elderly fallers. *Age Ageing* 1997;26:189-93.
32. Drozdick LW, Edelstein BA. Correlates of fear of falling in older adults who have experienced a fall. *Journal of Clinical Geropsychology* 2001;7:1-13.
33. Franzoni S, Rozzini R, Boffelli S, et al. Fear of falling in nursing home patients. *Gerontology* 1994;40:38-44.
34. Burkner EJ, Wong H, Sloane PD, et al. Predictors of fear of falling in dizzy and non-dizzy elderly. *Psychol Aging* 1995;10:104-10.
35. Clague JE, Petrie PJ, Horan MA. Hypocapnia and its relation to fear of falling. *Arch Phys Med Rehabil* 2000;81:1485-8.
36. Howland J, Peterson EW, Levin WC, et al. Fear of falling among the community-dwelling elderly. *J Aging Health* 1993;5:229-43.
37. Silverton, R., & Tideiksaar, R. (1989). Psychosocial aspects of falls. In R. Tideiksaar (Ed.), *Falling in old age: Its prevention and treatment*, (2nd ed.). New York: Springer.
38. Powell EL, Myers AM. The Activities-specific Balance Confidence (ABC) Scale. *J Gerontol* 1995;50A:M28-34.
39. Brouwer, B., Walker, C., Rydahl, S. J., & Culham, E. G. (2003). Reducing fear of falling in seniors through education and activity programs: A randomized trial. *Journal of American Geriatrics Society*, 51, 829-834.
40. Cameron ID, Stafford B, Cumming RG, et al. Hip protectors improve falls self-efficacy. *Age Ageing* 2000;29:57
41. Kressig, R. W., Wolf, S. T., Sattin, R. W., O'Grady, M., Greenspan, A., Curns, A., et al. (2001). Associations of demographic, functional, and behavioral characteristics with activity-related fear of falling among older adults transitioning to frailty. *Journal of American Gerontology Society*, 49, 1456-1462.
42. Nitz, J. C., & Choy, N. L. (2004). The efficacy of a specific balance-strategy training programme for preventing falls among older people: A pilot randomized controlled trial. *Age and Ageing*, 33, 52-58.
43. Sattin, R. W., Easley, K. A., Wolf, S. L., Chen, Y., & Kutner, M. H. (2005). Reduction in fear of falling through intense Tai-Chi exercise training in older, transitionally frail adults. *Journal of American Geriatric Society*, 53, 1168-1178.
44. Wilson, M-M. G., Miller, D. K., Andresen, E. M., Malmstrom, T. K., Miller, J. P., & Wolinsky, F. D. (2005). Fear of falling and related activity restriction among middle-aged African Americans. *Journal of Gerontology: Biological Sciences and Medical Sciences*, 60A, 355-360.
45. Wolf, S. L., Barnhart, H. X., Kutner, N. G., McNeely, E., Coogler, C., & Xu, T. (1996). Reducing frailty and falls in older persons: An investigation of Tai Chi and computerized balance training. *Journal of American Geriatrics Society*, 44, 489-497.
46. Evitt, C. P. & Quigley, P. A. (2004). Fear of falling in older adults: A guide to its prevalence, risk factors, and consequences. *Rehabilitation Nursing*, 29, 207-210.
47. Legters, K. (2002). Fear of falling. *Physical Therapy*, 82, 264-272.
48. Lach, H. W. (2005). Incidence and risk factors for developing fear of falling in older adults. *Public Health Nursing*, 22, 45-52.
49. Rucker, D., Rowe, B. H., Johnson, J. A., Steiner, I. P., Russell, A. S., Hanley, D. A., et al. (2006). Educational intervention to reduce falls and fear of falling in patients after fragility fracture: Results of a controlled pilot study. *Preventive Medicine*, 42, 316-319.
50. Lachman, M. E., Howland, J., Tennstedt, S., et al. (1998). Fear of falling and activity restriction: The survey of activities and fear of falling in the elderly (SAFE). *Journal of Gerontology: Psychological Science and Social Science*, 53, 43-50.
51. Huang, T. T. (2006). Geriatric fear of falling measure: Development and psychometric testing. *International Journal of Nursing Studies*, 43, 357-365.
52. Velozo, C. A. & Peterson, E. W. (2001). Developing meaningful fear of falling measures for community dwelling elderly. *American Journal of Physical Medicine & Rehabilitation*, 80, 662-673.
53. Tennstedt S, Howland J, Lachman M, et al. A randomized controlled trial of a group intervention to reduce fear of falling and associated activity restriction in older adults. *J Gerontol*. 1998;53B: P384-92.
54. Belgen, B., Beninato, M., Sullivan, P. E., & Narielwalla, K. (2006). The association of balance capacity and falls self-efficacy with history of falling in community-dwelling people with chronic stroke. *Archives of Physical Medicine and Rehabilitation*, 87, 554-561.
55. Schott, N. (2008). German adaptation of the "activities-specific balance confidence (ABC) scale" for the assessment of falls-related self-efficacy. *Zeitschrift Fur Gerontologie Und Geriatrie: Organ Der Deutschen Gesellschaft Fuer Gerontologie Und Geriatrie*, doi:10.1007/s00391-007-0504-9.
56. Andersson, A. G., Kamwendo, K., & Appelros, P. (2008). Fear of falling in stroke patients: Relationship with previous falls and functional characteristics. *International Journal of Rehabilitation Research. Internationale Zeitschrift Fur Rehabilitations forschung. Revue Internationale De Recherches De Readaptation*, 31, 261-264.
57. Gillespie, S. M., & Friedman, S. M. (2007). Fear of falling in new long-term care enrollees. *Journal of the American Medical Directors Association*, 8, 307-313.
58. Jung, D. Y., Lee, J. H., & Lee, S. M. (in press). A meta-analysis of fear of falling treatment programs for the elderly. *Western Journal of Nursing Research*.
59. Bandura A. Self-efficacy mechanism in human agency. *Am Psychol* 1982;2:122-47.
60. Hellstrom K, Lindmark B. Fear of falling in patients with stroke: A reliability study. *Clin Rehabil* 1999;13:509-17.

61. Fessel, K. D. & Nevitt, M. C. (1997). Correlates of fear of falling and activity limitation among persons with rheumatoid arthritis. *Arthritis Care Research*, 10, 222-228.
62. King MB, Tinetti ME. Falls in community-dwelling older persons. *J Am Geriatr Soc*. 1995;43:1146-54.
63. Resnick, B., & Junlapeeya, P. (2004). Falls in a community of older adults: Findings and implications for practice. *Applied Nursing Research*, 17, 81-91.
64. Chou, K. L., Yeung, F. K. C., & Wong, E. C. H. (2005). Fear of falling and depressive symptoms in Chinese elderly living in nursing homes: Fall efficacy and activity level as mediator or moderator? *Aging & Mental Health*, 9, 255-261.
65. Gagnon, N., Flint, A., Naglie, G., & Devins, G. M. (2005). Affective correlates of fear of falling in elderly persons. *American Journal of Geriatric Psychiatry*, 13, 7-14.
66. Niino, N., Tsuzuku, S., Ando, F., & Shimokata, H. (2000). Frequencies and circumstances of falls in the National Institute for Longevity Sciences, Longitudinal Study of Aging (NILS-LSA). *Journal of Epidemiology*, 10, 90-94.
67. Warr, P., Butcher, V., & Robertson, I. (2004). Activity and psychological well-being in older people. *Aging and Mental Health*, 8, 172-183.
68. Schoenfelder, D. P., & Rubenstein, L. M. (2004). An exercise program to improve fall-related outcomes in elderly nursing home residents. *Applied Nursing Research*, 17,21-31.
69. Tinetti ME, Baker DI, McAvay G, et al. A multifactorial intervention to reduce the risk of falling among elderly people living in the community. *New Engl J Med*. 1994;331:821-7.
70. Reinsch S, MacRae P, Lachenbruch PA, et al. Attempts to prevent falls and injury: a prospective community study. *Gerontologist*. 1992;32:450-6.
71. Van Haastregt, J. C., Zijlstra, G. A., Van Rossum, E., Van Eijk, J. T., & Kempen, G. I. (2008). Feelings of anxiety and symptoms of depression in community-living older persons who avoid activity for fear of falling. *American Journal of Geriatric Psychiatry*, 16, 186-193.
72. Li, F., Harmer, P., Fisher, J., McAuley, E., Chaumeton, N., Eckstrom, E., & Wilson, N.L. (2005). Tai Chi and fall reduction in older adults: a randomized control trial. *Journal of Gerontology: Biological Science and Medical Science*, 60A(2), 187-
73. Zhang, J-G., Ishikawa-Takata, K., Yamazaki, H., Morita, T., & Ohta, T. (2006). The effects of Tai-Chi Chuan on physiological function and fear of falling in the less robust elderly: An intervention study for preventing falls. *Archives of Gerontology and Geriatrics*, 42,107-116.



**The 5th Middle East Congress of Age, Ageing & Alzheimer's  
Updates on Geriatric Syndromes & Giants  
April 13-14  
&  
Advanced Postgraduate Course No. VI  
Session 1 April 12-13  
Principles of Geriatric Medicine  
12-14 April , 2017  
Beit Al Fan - Tripoli-Lebanon**

The 5th Middle East Congress of Age, Ageing, and Alzheimer's will bring together a network of key players, renowned scientists and professionals representing all fields of gerontology and geriatrics. Major changes continue to occur in Geriatric Care in the Region. These changes were greatly contributed to by various actors in the region including the Middle East Academy for Medicine of Ageing that started in 2002 and had played a leading role in the region in terms of education, training, and development. So far the Academy has had five cycles of postgraduate courses. Abyad Medical Center and Middle East Longevity Institute were instrumental in organizing these meetings. Over the previous years, several reputable official governmental, regional and international organisations have helped in the development of the academy.

In an attempt to answer some of the deficits in the region, the Middle East Association on Ageing & Alzheimer's (MEAAA) was established in 2005 in order to support various activities in the field of aging and Alzheimer's disease, in addition to launching the Middle East Journal of Age & Ageing in 2003 a peer reviewed journal, published to advance the status of gerontology in the Middle East and North Africa region and to share research and clinical study between nations of the Middle East and between the Middle East and the rest of the world. The Middle East Network on Age & Ageing Research MENAR was founded to promote research in the ageing field in the Region. So far three projects have been completed by the network.

There are 18 countries participating in this landmark event in the region. In addition to 60 international, regional and local speakers well known in their field. The exhibition will provide the opportunity to meet experts and professionals, to share ideas and experiences with colleagues from around the world, to learn about projects and techniques from five continents and to strengthen the formal and informal ties between professionals.

We look forward to welcoming you in Lebanon

Sincerely,

A. Abyad, MD, MPH, MBA, AGSF, AFCHSE, Lebanon

Hashim Hasan Balubaid, M.B., ChB.SSC-Med., FACP-Saudi Arabia



## Registration details

	MEAMA & Conference	Conference Alone	Number of nights needed	Gala Dinner
Physician Participant	800	200		50
Paramedical	400	100		50
Student	200	50		50
<b>Total</b>				

Registration form (pdf) can be found at: [http://www.me-jaa.com/June2017/contentsNovember2017.htm/Registration simple.pdf](http://www.me-jaa.com/June2017/contentsNovember2017.htm/Registration%20simple.pdf)

