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Editorial

Dr Abdulrazak Abyad
Chief Editor

This is the last issue this year. Although the quality of papers has improved, there is not much research and work in the field in the region. We would like to encourage young researchers to submit their papers to the journal. At the end of the year we would like to thank the editorial board, the production team , and our readers for their support and help.

A Randomized controlled trial from Turkey looked at the Effect of Two Different Strength Training Programs on Functional Performance and Pain of Elderly Women with Knee Osteoarthritis. Static balance (eyes open) score, WOMAC function, pain and stiffness scores, chair stand performance, and stairs descent scores significantly improved in OKCG and CKCG when compared with the CG ($p<0.05$). The paper clearly demonstrated that strength training with an elastic band for twelve weeks improves functional performance, decreases pain and increases quality of life in the women with knee osteoarthritis.

A population based study from Malaysia looked at falls and physical performance among frail Sexagenarians and Septuagenarians. The aim of the authors was to

determine the relationship between physical performance, the number of falls and the socio demographic, physical, clinical and functional characteristics of older adult fallers. The authors concluded that among older adults fallers, poor physical performance is associated with more advanced age, more illnesses and less functional independence. Moreover, recurrent falls are associated with more illnesses, less muscle strength and less bowel management tasks.

A paper from Pakistan looked at the Role of the Family Physician in Palliative Care. The authors stressed that with the increasing burden of cancer patients, family physicians in developed as well as developing countries are expected to provide the best possible care to patients with cancer pain. A good understanding of the available pharmacological and non-pharmacological options makes the task of caring for such patients very rewarding and satisfying. The authors concluded that family physicians are the medical professionals best equipped to care for most terminally ill patients, as their training imparts the skills and knowledge needed to treat common problems associated with every system of the human body.

A paper from Bangladesh looked at the elderly from a Socio-economic Perspective . The authors stressed that because in the elderly stage, physical strength deteriorates, mental stability diminishes, money power becomes bleak and eyesight suffers a setback, old age is not free from problems. Many studies have been conducted so far on the elderly and their welfare, but none of those studies have addressed the destitute elderly issue clearly.

A paper from Iran looked at Higher Longevity and Post Retirement Productive Engagements of University Retired Faculty Members. The authors studied 120 retired faculty members above age 60. The findings of the study showed that engagements of retired faculty members in economic productive activities were directly associated with an increase in life expectancy but other factors were also contributing in their re-employment.

Original Contribution/Clinical Investigation

Falls and physical performance among frail Sexagenarians and Septuagenarians

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ABSTRACT

Background:
There are few population-based studies on the factors associated with falls, and there is a lack of prevention of falls among older adults in primary and secondary health care, particularly in terms of physical activity that could improve the physical performance of individuals at risk of falling.

Objective: To determine the relationship between physical performance, the number of falls and the socio-demographic, physical, clinical and functional characteristics of older adult fallers.

Methods: Cross-sectional study carried out among 72 older adults with a history of falls in the past year. The participants divided into worst physical performance (WPP) and best physical performance (BPP), one-time fallers (1F) and frequent fallers (2F).

Results: The WPP group was older and had a higher number of illnesses and less independence in most motor dimension tasks compared to the BPP group. The 2F group had a higher number of illnesses, less handgrip strength and bowel management tasks in the motor dimension of the Functional Independence Measure compared to the 1F group.

Conclusions: Among older adult fallers, poor physical performance is associated with more advanced age, more illnesses and less functional independence. Moreover, recurrent falls are associated with more illnesses, less muscle strength and less bowel management tasks.

Key words: Aging, Exercise, Fall, Gait

Introduction

Falls in older adults lead to consequences related not only to social aspects, but also to economic, physical and psychological aspects of the individual's life (1). The incidence of falls in individuals over 60 years of age stands out due to the fact that the consequences of a fall can be complex and lead older adults to conditions of morbidity, mortality and dependence in the activities of daily living (ADLs) (2-4). Falls are a significant cause of morbidity and mortality among the elderly (5).

According to the literature, changes in the mobility of older adults result from environmental factors, physiological modifications associated with the aging process, or even from the consequences of the lifestyle adopted by the individual throughout his life (6-8). The decline in physical capacity is related to the reduction in muscle strength, to impairments in gait performance and to changes in static balance (9, 10). These parameters can vary according to the individual's sociodemographic, physical and functional characteristics, and they are linked to falls because falling can result from the body instability caused by this decline.

Older adults often seek outpatient care to treat these consequences that affect the functionality and quality of life of this age group. Studies of this nature are important because they describe the profile of the older adults that are at greater risk of falling, which can prevent the occurrence of this event, maintain a standard of quality of life for older adults and reduce costs to the country's public health systems (11, 12).

There are few population-based studies on the factors associated with falls, and there is a lack of prevention of falls among older adults in primary and secondary health care, particularly in terms of physical activity that could improve the physical performance of individuals at risk of falling. Therefore, the objective of the present study is to determine whether there is a relationship between physical performance, the number of falls and the sociodemographic, physical, clinical and functional characteristics of older adult fallers.

Materials and Methods

This is a cross-sectional study, in which the sample was composed of male and female Sexagenarians (60 to 69 years) and Septuagenarians (70 to 79 years) from the Kota kinabalu, East Malaysia area, who received care at the Geriatric Outpatient Clinic.

As many older adults as possible were approached each day to inquire about their willingness to take part in the study, their availability for an interview and their compatibility with the inclusion criteria. Data was collected through an individual interview, with or without the presence of the caregiver. Each interview lasted from one hour to one and a half hours. Of the 145 older adults interviewed, 72 had a history of falls and were selected to join the present study, which aimed to describe the characteristics of fallers only.

Exclusion Criteria:

If they had not fallen in the past year, refused to participate, received care on a Stretcher, had cognitive impairment identified by the Mini-Mental State Examination (13) or had a diagnosis that would impair the comprehension of the questionnaires of the study's protocol or impair the performance of the tasks contained in this protocol.

Outcome measures:

The following instruments were used for data collection.

- Firstly, the sociodemographic characteristics were obtained, including sex, age group and literacy.

- Secondly, the clinical characteristics were recorded, including the occurrence of falls (number, fractures, hospitalizations), according to the Kellogg International Work Group (KIWG) on the Prevention of Falls by the Elderly (14). The older adults and/or their caregiver were asked about the incidence of a fall in the past year and about the number of associated diseases, medications in use, and visual capacity determined by the measure of visual acuity using the Snellen chart. Visual acuity >20/60 in the best eye, with corrective lenses, if used, was considered low vision.

- Thirdly, the physical characteristics were obtained for regular physical activity, levels of physical performance through the Short Physical Performance Battery (SPPB) in the domains balance, gait, and lower limb (LL) strength (15), and handgrip strength (HS) measured with Hand held dynamometer.

- Finally, functional characteristics were assessed through the Functional Independence Measure (FIM) (16, 17).

For the comparison analysis of the present study, we considered as outcome the criterion variables of physical performance level (gait, balance and LL muscle strength) and number of falls. The groups were divided into 1F (one-time fallers) and 2F (frequent fallers in the past year), and they were also divided into worst physical performance (WPP) for scores 0-6 in the SPPB and best physical performance (BPP) for scores 7-12 in the SPPB. These groups were divided according to the previous calculation of the median score obtained by the older adults in the test. The median was 6.0; therefore the WPP group was defined as those who scored from 1 to 6, and the BPP from 7 to 12.

The statistical analysis was descriptive and comparative by means of chi-square tests (categorical data), Student's t test (parametric, ordinal or interval data) and Mann-Whitney (non-parametric, ordinal and interval), considering the results of the data normality test (Kolmogorov-Smirnov). The significance value was set at $p<0.05$.

Results

Most of the older adults were female (65.3%), Septuagenarians (58.3%), with an incidence of two or more falls (56.2%) in the past year and without low vision (63.9%; Table 1).

Variables	N (%)
Sex	
Male	25 (34.7%)
Female	47 (65.3%)
Age	
Sexagenarians(60-69 years)	30 (41.7%)
Septuagenarians(70-79 years)	42 (58.3%)
Literacy	
Yes	41 (56.9%)
No	31 (43.1%)
Number of falls*	
1	32 (43.8%)
≥2	40 (55.6%)
Associated illnesses	
0-4	28 (38.9%)
≥5	44 (61.1%)
Number of medications	
0-4	31 (43.1%)
≥5	41 (56.9%)
Low vision**	
Yes	24 (34.3%)
No	46 (65.7%)
Fracture due to fall*	
Yes	7 (9.7%)
No	65 (90.3%)
Hospitalization due to fall*	
Yes	17 (23.6%)
No	54 (76.4%)

* Values according to past year; ** Missing=2

Table 1. Description of socio demographic and clinical variables of older adults (n=72)

With regard to functional independence, the older adults had high mean scores in each of the FIM motor tasks, and more than a half of the participants reported complete independence in these tasks, except in the items of dressing the lower body, bladder management, walking and stairs (Table 2).

When the criterion variable was physical performance, in the sociodemographic and clinical variables, there was a significant difference between the WPP and BPP groups as to age group and number of associated diseases. Most of the older adults in the WPP group were Septuagenarians and had five or more associated diseases. Concerning functional inde-pendence, the WPP and BPP groups showed significant differences in most of the motor tasks of the FIM, except feeding and bowel management. Those with a poor performance were less independent in the tasks (Table 3 - page 6).

In the analysis of the number of falls, in the sociodemographic, clinical and physical variables, the findings showed a significant difference between the one-time fallers and the frequent fallers regarding the number of associated diseases ($p<0.001$) and to HS ($p=0.024$). The frequent-fallers had more associated diseases and less HS. Considering the functional variables, the frequent-fallers had a significant difference in the motor dimension of the FIM, specifically bowel management, in which they reported lower independence (Table 4 - page 7).

Variables	Items	Tasks	N (%)	Mean (±SD)
Regular physical activity	Yes		19(26.4%)	
	No		53(73.6%)	
Short Physical Performance Battery (SPPB)	Balance*			2.7(±1.3)
	Gait*			1.1(±1.0)
	Lower limb strength*			1.1(±0.8)
	Total Score**			5.9(±2.6)
Handgrip strength (0 to 50 kg)				20.6(±8.1)
Functional Independence Measure† ***	Self-care	1. Eating	56(77.8%)	
		2. Grooming	59(81.9%)	
		3. Bathing/showering	49(68.1%)	
		4. Dressing upper body	52(72.2%)	
		5. Dressing lower body	34(47.2%)	
		6. Toileting	54(75.0%)	
	Sphincters	1. Bladder management	33(45.8%)	
		2. Bowel management	48(66.7%)	
	Mobility	1.Transfers: bed/chair/wheelchair	44(61.1%)	
		2. Transfers: toilet	44(61.1%)	
		3. Transfers: bathtub/shower	43(59.7%)	
		4. Locomotion: walking/wheelchair	34(47.2%)	
		5. Locomotion: stairs	10(13.9%)	

* Values = 0 to 4, varying from worst to best performance; ** Values = 0 to 12, varying from worst to best performance; *** Values = 1 to 7, varying from worst to best performance; † N (%) of subjects with total independence (±SD) in the FIM scores.

Table 2: Description of physical performance of older adults according to physical and functional variables (n=72)

Variable		Physical Performance				p Value
		WPP(n=41)		BPP (n=31)		
		N (%)	Mean(±SD)	N(%)π	Mean(±SD)	
Sex α						
Male		13 (31.7%)		12 (38.7%)		0.537
Female		28 (68.3%)		19 (61.3%)		
Age α						
Sexagenarians(60-69 years)		12 (29.3%)		18 (58.1%)		0.014
Septuagenarians(70-79 years)		29 (70.7%)		13 (41.9%)		
Number of falls α						
1		15 (36.6%)		17 (54.8%)		0.123
≥2		26 (63.4%)		14 (45.2%)		
Associated illnesses α						
0-4		12 (29.3%)		16 (51.6%)		0.042
≥5		29 (70.7%)		15 (48.4%)		
Number of medications α						
0-4		16 (39.0%)		15 (48.4%)		0.054
≥5		25 (61.0%)		16 (51.6%)		
Low vision α						
Yes		13 (31.7%)		11 (37.9%)		0.589
No		28 (68.3%)		18 (62.1%)		
physical activity α						
Yes		10 (24.4%)		9 (29.0%)		0.658
No		31 (75.6%)		22 (71.0%)		
Handgrip strength(kg) ∞			19.3 (6.9)		20.6 (8.2)	0.458
Functional Independence Measure β						
Self-care	1. Eating	29(70.7%)		27 (87.1%)		0.079
	2. Grooming	30(73.2%)		29 (93.5%)		0.032
	3. Bathing/showering	21(51.2%)		28 (90.3%)		p<0.001
	4. Dressing upper body	24(58.5%)		28 (90.3%)		0.003
	5. Dressing lower body	13(31.7%)		21 (67.7%)		0.001
	6. Toileting	25(61.0%)		25 (80.6%)		0.002
Sphincters	1. Bladder management	14(34.1%)		19 (61.3%)		0.034
	2. Bowel management	24(58.5%)		24 (77.4%)		0.094
Mobility	1.Transfers: bed/chair/wheelchair	19(46.3%)		25 (80.6%)		0.002
	2. Transfers: toilet	19(46.3%)		25 (80.6%)		0.003
	3. Transfers: bathtub/shower	17(41.5%)		26 (83.9%)		p<0.001
	4. Locomotion: walking/wheelchair	11(26.8%)		23 (74.2%)		p<0.001
	5. Locomotion: stairs	2 (4.9%)		8 (25.8%)		p<0.001

α Chi-square test; p-value <0.05; β Mann-Whitney test; p-value <0.05; ∞ Student t test; p-value <0.05; WPP=worst physical performance; BPP=best physical performance; π N (%) of subjects with total independence (±SD) in the FIM scores.

Table 3: Comparison between older adults with best and worst physical performance according to sociodemographic, physical, clinical and functional variables (n=72).

Variable		Number of Fall				p Value
		1 (n=32)		≥2 (n=40)		
		N (%)	Mean(±SD)	N (%)π	Mean(±SD)	
Sex α						
Male		14(43.7%)		11 (27.5%)		0.150
Female		18(56.3%)		29 (72.5%)		
Age α						
Sexagenarians(60-69 years)		13(33.3%)		17 (42.5%)		0.856
Septuagenarians(70-79 years)		19(66.6%)		23 (57.5%)		
Associated illnesses α						
0-4		20 62.5%)		8 (20.0%)		p<0.001
≥5		12 37.5%)		32 (80.0%)		
Number of medications α						
0-4		14(43.7%)		17 (42.5%)		0.915
≥5		18(56.3%)		23 (57.5%)		
Low vision α						
Yes		18(56.5%)		29 (72.5%)		0.851
No		14(43.5%)		11 (27.5%)		
physical activity α						
Yes		8 (25.0%)		11 (27.5%)		0.811
No		24(75.0%)		29 (72.5%)		
Physical Performance(SPPB)						
	Balance		2.9 (±1.2)		2.3 (±1.2)	0.055 β
	Gait		1.9 (±1.0)		2.0 (±1.1)	0.621 β
	Lower limb strength		1.0 (±0.8)		2.3 (±1.2)	0.845 β
	Total Score		6.0 (±2.5)		5.3 (±2.5)	0.938∞
Handgrip strength(kg) ∞			22.1(±8.3)		18.1(±6.3)	0.024
Functional Independence Measure β						
Self-care	1. Eating	23(71.9%)		33 (82.5%)		0.373
	2. Grooming	27(84.4%)		32 (80%)		0.559
	3. Bathing/showering	25(78.1%)		24 (60.0%)		0.156
	4. Dressing upper body	25(78.1%)		27 (67.5%)		0.287
	5. Dressing lower body	18(56.3%)		16 (40.0%)		0.172
	6. Toileting	25(78.1%)		29 (72.5%)		0.647
Sphincters	1. Bladder management	16(50.0%)		17 (42.5%)		0.686
	2. Bowel management	26 (8.3%)		22 (55.0%)		0.014
Mobility	1.Transfers: bed/chair/wheelchair	22(68.8%)		22 (55.0%)		0.308
	2. Transfers: toilet	23(71.9%)		21 (52.5%)		0.100
	3. Transfers: bathtub/shower	23(71.9%)		20 (50.0%)		0.056
	4. Locomotion: walking/wheelchair	16(50.0%)		18 (12.5%)		0.264
	5. Locomotion: stairs	5 (15.6%)		5 (12.5%)		0.932

α Chi-square test; p-value <0.05; β Mann-Whitney test; p-value <0.05; ∞ Student t test; p-value <0.05; π N (%) of subjects with total independence (±SD) in the FIM scores.

Table 4: Comparison between one-time fallers and recurrent fallers according to sociodemographic, physical, clinical and functional variables (n=72)

Discussion

In the present study, the majority of fallers were Septuagenarian females with a high number of illnesses and use of medication and two or more falls. Additionally, most of them had poor physical performance, higher independence levels in ADLs and good visual acuity. These characteristics may be due to the location of the survey, as older outpatients differ from community-dwelling older adults in these factors (3, 5).

These findings indicate that the present study participants had debilitating characteristics and factors often associated with the occurrence of falls; however they also showed alternative ways to overcome the functional difficulties that emerged due to age-related impairments or the consequences of falls. These data support studies conducted in outpatient or hospital settings (18).

It is important to note that, in the analysis of the factors associated with falls, it is difficult to identify which variables are causes and which are consequences of these events. Low levels of muscle strength, for example, can be a cause of falls, and the incidence of one or more falls can limit movement and consequently, reduce the level of muscle strength. In this context, Gazzola et al. (10) and Estefani (19) reported that the fear of falling prompts relatives to take protective measures that lead the older fallers to restrict their movements to avoid the consequences of another fall. This fact can increase the cycle of sedentary lifestyle and low physical and functional performance, causing isolation and insecurity and leading the older adult to a condition of morbidity or mortality.

Physical activity is recommended as an intervention that may reduce the structural loss of physical fitness associated with aging. Most of the study participants were sedentary and had poor physical performance, which indicates that older adult fallers should be encouraged to adopt an active lifestyle to prevent falls. The WPP found in the Septuagenarians may be explained by the progressive degeneration of the physical components throughout life, together with the high number of chronic-degenerative diseases that advanced age tends to manifest. These chronic diseases, especially the musculoskeletal ones, lead to a stiffening of the joints and contribute to poor gait and balance performance (5, 20-22), which can explain the relationship between physical performance and the number of diseases found in the present study.

The older adults with less HS were those who reported the occurrence of two or more falls. This measure has been regarded as a good predictor of musculoskeletal function (22-24). The literature has also linked it to low bone mass in menopausal women, which represents a higher risk of lower limb fracture and conditions associated with frailty and falls (8, 24).

Regarding functional independence, the use of stairs, which depends on an ideal physical performance in gait, balance and strength, was one of the tasks associated with WPP in the present study. According to Fabricio, Rodrigues and Costa Junior (18), it is one of the most impaired activities after a fall. Still, regarding functionality, the participants who reported less independence in bowel management had recurrent falls. The consequences of these events may be related to neurological diseases, such as stroke, which can reduce sphincter control and/or require the use of more medication. According to Oliveira et al. (25), the side effects of antacids (with calcium or aluminum), antispasmodics, diuretics, analgesics, anticonvulsants and antidepressants, used by older adults with severe consequences from a fall, increase the chances of impaired bowel function. These findings can also be understood in light of the bowel urgency experienced by some older adults, which leads to quick and unbalanced movements toward the bathroom and increases the risk for falls.

Older adults with less functional independence in 12 of the 14 FIM tasks had poor physical performance. Satisfactory levels of functional independence seem to generate sufficient movement to maintain physical performance; however that is insufficient to avoid falls. In a longitudinal study, Parayba and Simoes (26) verified, in the functional tasks performed by older adults, a "slight difficulty" in walking 100 meters and a decrease in the prevalence of functional disability. However, in the present research, this prevalence was distinct and related to worst physical performance, which may be explained by the debilitating characteristics of the studied group.

Although the literature shows a relationship between the occurrence of falls and low visual acuity and physical activity (24, 27-29), this was not observed in the two comparative analyses of the present study. These results may be explained by the limiting factors of this research, such as the low rate of active older adults, the predominance of normal or close to normal vision, the lack of details in the FIM motor tasks, as well as the indirect measures of strength, gait and balance. Environmental factors were not assessed in the present investigation, but should be considered when analyzing falls because they represent one of the major causes of these events (10, 30). In addition to the vulnerability of older adults and the consequences of diseases, environmental factors further increase the chance of falling.

This study helps increase the number of studies on falls, especially in specific settings such as outpatient clinics, however, it is worth noting that a relevant limitation was the sample size caused by the characteristics of the group studied, which limits data extrapolation to other population groups. Given the limitations of this study, some recommendations could be made to future studies in a country that lacks studies on falls among older adults, i.e. the use of a larger sample, a longitudinal study design, a better description of the fall, the addition of tests using direct measures and the refinement of some factors frequently associated with falls.

The present research data point to the occurrence of falls and their associated characteristics as important factors to be assessed in the clinical health practice of physical therapists, physical education professionals, nurses or physicians. Fabricio, Rodrigues and Costa Junior (18) stated that a fall is indicative of undiagnosed diseases and can be a starting point for a more detailed assessment. However, the results of this and other studies show that the prevention of falls appears to

be more relevant, as their consequences can be serious and, in some cases, deadly. This fact may bring about the need to shift the attention of basic health toward family support in older adult care. The reduction in the risk of falls represents a strategy to decrease the costs of older adult care and becomes possible as the predisposing factors are analyzed (8).

Conclusions

This study suggests that, among older adult fallers, the worst levels of physical performance were related to more advanced age, greater number of diseases and lower functional independence. Furthermore, recurrent falls were related to a greater number of diseases, less handgrip strength and lower functional independence in bowel management. Government incentives are also important to help in the development of educational strategies associated with prevention and exercises that improve walking and static and dynamic balance to main-tain the movement stability and functionality of older adults. These interventions are necessary to detect the risk of falls and to recommend prevention and/or rehabilitation strategies for older adult fallers.

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The Effect of Two Different Strength Training Programs on Functional Performance and Pain of Elderly Women with Knee Osteoarthritis

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Introduction

Knee osteoarthritis (OA) is a degenerative disease associated with pain and loss of functional capacity. Physical disability arising from pain and loss of functional capacity in the knee reduces quality of life and increases the risk of further morbidity and mortality (1). Pain and muscle strength may particularly influence postural sway (2). Also, if knee OA impairs quadriceps function this may impair the patient's balance and gait, reducing their mobility and function (3,4,5).

Both strength exercise and aerobic exercise are evidence-based recommendations, which reduce pain and improve function and health status in patients with knee OA (6).

Strengthening is an important factor in the performance of daily activities, and an important part of a comprehensive rehabilitation program for the elderly adult with OA. Researchers have demonstrated that resistance training reverses many age-related physiologic changes and can improve function (7,8). Exercise has been recommended by the American College of Rheumatology as a treatment for knee osteoarthritis on the basis of several small trials that demonstrated its efficacy for this condition (9,10). In patients with light to moderate OA of the knees, regular strength exercise is possible and leads to improvement in muscle strength, endurance and speed (11).

The classification of lower extremity strengthening exercises is commonly referred to as either open kinetic chain (OKC, non-weight-bearing) or closed kinetic chain (CKC, weight-bearing) exercises. Exercises with the distal segment of the limb fixed are referred to as CKC, whereas exercises performed with the distal segment of the limb movable are referred to as OKC (12). It is not imperative that so-called OKC exercises have more negative effects than CKC exercises. Depending on the stage of rehabilitation, application of OKC and CKC exercises have special importance which supports a combination of the two forms. Both exercise modes are necessary in rehabilitation to improve both proprioception and function (13). Many randomized trials have demonstrated the positive effect of regular exercise on older people's muscle strength, flexibility, aerobic capacity, and balance and on reducing the risk of falls and fractures and preventing (coronary) disease (14). However, there is no consensus regarding = OKC and CKC training programs with elastic band for functional performance in women with knee osteoarthritis, in Turkey.

The purpose of this study was to determine the effect of closed kinetic chain and open kinetic chain strength exercises with elastic band on functional performance and pain in elderly women with knee OA.

Methods

Setting and Participants

The study was conducted at the Education and Research Hospital, Department of Physical Therapy and Rehabilitation in Antalya, Turkey between August 2005 and August 2006. Participants with OA, with a diagnosis based on clinical and radiological criteria by the American College of Rheumatology (15), were recruited. We informed participants that we were studying the effects of two different types of exercise training programs. All outcome measures were measured and 12 weeks of training were conducted in the Akdeniz University, Sports Sciences Research and Application Center in Antalya, Turkey. Inclusion criteria were being independent in daily activities, volunteer and being between 50-74 years of age. Exclusion criteria were being involved in regular physical activity and physiotherapy, perception and cognition defect, diabetes, using any assistive equipment, having a Standardized Mini-Mental State Examination (SMMSE) score of 23 or less (16).

Before randomization all participants were informed about types of OA, risk factors and management of OA, in a one hour educational session. All participants were also informed about a random allocation to either of the exercise groups or a control group. After written informed consent, fifty two participants were randomized. Seventeen participants were assigned to the control group, whose members did not exercise, and eighteen patients were assigned to the open kinetic chain group and seventeen participants were assigned to the closed kinetic chain group. Simple randomization was employed using a computer generated table of random numbers by a person external to the study and was managed by an external department. Seven women in the control group did not participate in the first measurements (no given reason). In the second measurements period, two women did not participate in the open kinetic chain group (one because of a relative's death and because of a grandchild), and in the seventh weeks of the training period, one woman withdrew from the study in the closed kinetic chain group (because of a move to another city). The final analysis included 42 women who completed the training program: 16 in the OK group, 16 in the CK group and 10 in the C group. Data on demographics, medical history, and drug use were collected directly from the participants at the beginning of the study. All outcome measures were measured before the initiation of strength training (baseline) by five trained assistants blinded to the participants treatment allocations and then measured again at six weeks of training (mid-training) and at 12 weeks of training (post training) by the same researchers from the Sports Sciences Research and Application Center in Akdeniz University. Assessments and measurements were performed under similar conditions (time of day, temperature, setting) during the 12 weeks. Participants were advised not to change the treatment for any chronic condition and to immediately inform the research team in the case of participation in other programs.

Outcome measure

Knee OA outcome measurements were by WOMAC pain, stiffness, function, static (eyes open-eyes closed) and dynamic balance, functional performance such as the chair-stand, 6-min walk, stairs descent and stairs climbing. A Turkish version of WOMAC consists of three subscales including pain, stiffness, and physical function, with higher scores indicating disease severity (17). It has 3 subscales that we analyzed separately: pain (score range 0-500), stiffness (score range 0-200), and function (score range 0-1700), with higher scores indicating more severe disease. Height was measured using a stadiometer (Britain Holtain Limited Crymych Dyfed). Weight was measured using Tanita body composition analyzer (model TBF-300). The chair-stand test (measured in seconds) was used to assess lower body strength. Participants sat in the middle of the chair with the back straight and with a seat height of 43.18cm, feet flat on the floor, and arms crossed at the wrists and held against the chest. The participant stood up, then returned to a fully seated position. After a demonstration by the tester, a practice trial of two numbers of stands executed correctly within 30 seconds was conducted. Support with the arms was not allowed. A 6 minute walk test (measured in meters) was used to assess aerobic endurance. The score was the total distance walked in 6 minutes along a 45.72 m rectangular course, marked every 4.57 m. Stairs climbing test was used to assess functional capacity. The participant stood at the bottom of a regular 10-step staircase (tread height 15-cm) and was asked to ascend the stairs as fast as possible on the command "Go." The stopwatch was started on the command and was stopped when participants put their feet on the top step of stairs. Stairs descent test was used to assess functional capacity. The participant stood at the top of the stair described previously. The stopwatch was started on the command and was stopped when the participant placed their feet on the floor at the bottom of the stairs. Patients were not allowed use of handrails. The KAT balance system (KorebalanceTM Kinesthetic Ability Trainer VISTA CA) was used to assess static and dynamic balance. The KAT balance measure protocol was used to test stability on a platform with adjustable settings measured in pounds per square inch (increased psi increases platform stability). Prior to the first test condition, stability was set to 6.0 psi to replicate standing on a hard surface. Participants removed their hands from the handrail upon command and stood as quietly as possible and tried not to grasp the handrail. The measure of balance was recorded as the length of time the participant maintained platform stability within ± 0.2 for a maximum of 30 seconds. (18).

Training Program

A 12 week strength training program was supervised two times per week by five trainers and one health technician. Participants were informed of the details of the training program, rules of safety, work stations and breathing control, and using the elastic band during training. The training program involved open kinetic chain and closed kinetic chain exercises. Training sessions began with a 15 minute warm-up and ended with a 10 minute cool-down session. These sessions included slow walk, low-impact calisthenics and slow, static stretching exercises. Briefly, each of the 35 patients in the training group had an individually planned program with respect to their own physical capacity. The elastic bands were used for resistance and the stiffness of the band was increased according to the improvements in strength. The program included progressive

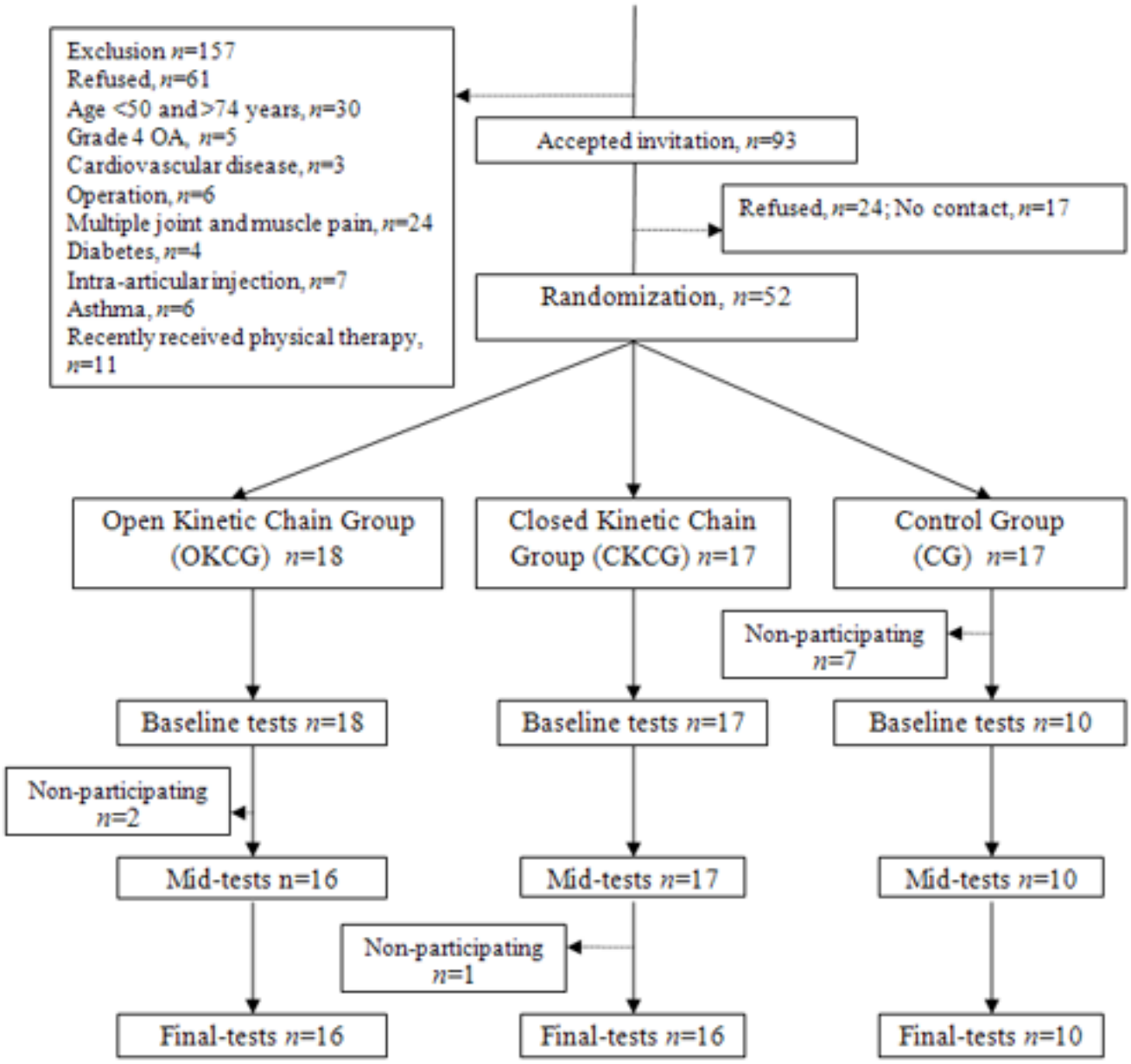

Figure 1:Summary data of study recruitment and completion

	OK Group (n= 18)		CK GROUP (n= 17)		CG (n=10)	
Variables	**M**	**SD**	**M**	**SD**	**M**	**SD**
Age (yr)	53.73	4.62	54.82	5.49	54.50	4.92†
Height (cm)	152.68	6.13	154.17	6.88	156.20	4.68*
Weight (kg)	79.56	13.34	76.07	11.45	80.52	9.07*
SMMSE (score)	28.80	1.74	28.63	2.50	29.50	0.71†

SMMSE, Standardized Mini-Mental State Examination; OKG, open kinetic chain group; CKG, closed kinetic chain group; CG, control group; * F value, $p<0.05$, significant baseline difference, one-way ANOVA; † 2 value, $p<0.05$, significant baseline difference, Kruskal-Wallis test.

Table 1: Age, height and weight characteristics of Women (M ± SD)

dynamic strength training for low major muscle groups. In the first two weeks, exercises with 10 repetitions in two sets were performed. In the first two weeks exercises were performed without elastic band. Two-minute rest intervals were allowed between sets, and 1-minute rest between single exercises.

Exercises

The open kinetic chain exercises were organized as a row of six exercise stations. The exercises included hip adduction and abduction (standing position), external rotation and internal rotation (in a sitting position), knee flexion (lying position) and extension (in a sitting position). The closed kinetic chain exercises included hip adduction and abduction (received chair support) external rotation and internal rotation (in sitting position on a chair), knee flexion and extension and squat (received chair support).

Intensity

Intensity of the strength training program was expressed as a percentage of 20 RM (Repetition Maximum). Low loads of 50 % of 20 RM were used during the second 2 weeks. The intensity of beginning was determined according to Borg scale for each participant. The participant was applied to 20 RM with low resistance elastic band (yellow) and when the participant could easily complete 20 repetitions (14 of Borg scale) of an exercise, they were encouraged to use a band of higher resistance, with progression from yellow to red to green to blue bands. The intensity of training was applied during two weeks. At the beginning, the participants completed two sets of 10 repetitions for each leg. The volume of training was increased to 14 repetitions. Progression application of the overload principle as adaptation depends on the individual's response to training. The resistance (band colour) was increased according to the improvements in strength, individually.

Data Analysis

All data analysis was performed using SPSS for Windows, version 11.5 (SPSS, Chicago, IL). The mean ± standard deviation was calculated for each variable. The data were assessed for normality by calculating values for kurtosis and skewness, as well as via the Kolmogorov-Smirnov test of normality. One way analysis of variance and Kruskal Wallis tests were used to compare differences of baseline measurements among the three groups. The level of significance was set at 0.05. Multiple 3 3 (group time) analysis of variance (ANOVA) was performed to identify significant changes over time. A post hoc Bonferroni test was used to compare the main time and group effects with confidence interval adjustment.

Ethics

The experimental protocol was in accordance with ethical standards on human experimentation and the Helsinki Declaration of 1975 as revised in 1983, and was approved by the Akdeniz University, Faculty of Medicine Research and Ethics Committee. (12.07.2005 date, number 189 and project number of this research: 2006.03.0122.001) and each participant gave signed informed consent.

Results

Between August 2005 and August 2006, 218 individuals were contacted at the Education and Research Hospital, Department of Physical Therapy and Rehabilitation in Antalya, Turkey and screened by telephone and 93 were identified for evaluation. Fifty two participants were found eligible and were randomized to the training program or control group. The remaining participants were excluded for a variety of reasons (Figure 1). Baseline data: Table 1 shows the baseline data of 52 participants before the training program. The groups did not differ in age, SMMSE, height, weight, the chair-stand, 6 minute walk, chair-stand, stairs descent and stairs climbing, and pain, functional, stiffness of WOMAC scores and static-dynamic balance at the baseline ($p>0.05$, Table 2 - next page). The results of the outcome measurements at the baseline, mid-training, and post-training times are presented in Table 2 for all groups.

Attendance for the training was 88% for the open kinetic chain group and 94 % for the closed kinetic chain group and 100% for the control group over 12 weeks.

There was a significant group effect for the chair stand, stairs descent, static balance (eyes open), WOMAC pain, stiffness, and function scores ($p<0.05$). But, the groups did not differ significantly on stairs climbing, 6 minute walk, static balance (eyes closed), and dynamic balance ($p>0.05$). The chair stand, stairs descent, static balance (eyes open) performances increased ($p<0.001$, $p=0.046$, and $p<0.001$, respectively) and WOMAC pain, stiffness and function scores decreased in OKG with respect to CG ($p<0.001$, $p<0.001$, and $p<0.001$, respectively). The chair stand, stairs descent, static balance (eyes open) performances increased ($p<0.001$, $p=0.044$, and $p<0.001$, respectively) and WOMAC pain, and function scores decreased in CKG when compared with the CG ($p<0.001$ and $p<0.001$, respectively). However there were no differences in the chair stand, stairs descent, static balance (eyes open), and WOMAC pain, stiffness, and function scores between the OKG and the CKG ($p>0.05$) (Table 2).

None of the test scores had changed in the CG compared with baseline scores, except WOMAC function score which increased ($p=0.028$). The difference between baseline and post-training values in the OKG and CKG was significant for stairs climbing ($p=0.010$ and $p=0.007$, respectively), and WOMAC pain score ($p<0.001$ and $p=0.021$, respectively), stiffness score ($p=0.006$ and $p=0.048$, respectively), and function score ($p<0.001$ and $p=0.002$, respectively). Additionally, the chair stand test, static balance (eyes open), and dynamic balance performances increased in the CKG at post-training with respect to baseline ($p=0.003$, $p<0.001$, and $p=0.041$, respectively, Table 3 - page 16).

Discussion

This study indicated that elderly women with knee osteoarthritis may improve their functional performance, balance and may decrease pain after OK and CK strength training with elastic band for 12 weeks. In patients with severe OA,

	OK Group (n= 18)		CK GROUP (n= 17)		CG (n=10)	
Variables	M	SD	M	SD	M	SD
6-min walk(m)	463.03	59.33	459.81	65.58	446.11	70.74*
Chair-stand(reps)	14.42	3.76	13.00	3.66	11.70	2.36*
Stairs descent(sec)	4.22	1.23	4.51	1.85	4.84	2.04†
Stairs climbing(sec)	4.58	1.36	4.54	1.19	4.62	1.69†
Static balance (score) (eyes open)	443.52	180.12	430.23	145.38	528.20	200.61*
Static balance (score) (eyes closed)	1045.05	762.29	1167.65	774.96	1051.80	746.61†
Dynamic balance (score)	1682.00	484.95	1854.64	628.13	2080.50	582.80†
WOMAC Pain	4.31	2.16	3.94	2.29	4.45	2.36*
WOMAC Function	4.29	2.49	4.41	2.36	5.11	2.35*
WOMAC Stiffness	3.09	2.67	4.04	3.23	3.75	2.88†

WOMAC, Western Ontario and Mc Master Universities Osteoarthritis Index, * F value, $p<0.05$, significant baseline difference, one-way ANOVA; † 2 value, $p<0.05$, significant baseline difference, Kruskal-Wallis test.

Table 2: Physical performance and quality of life characteristics of women (M ± SD)

strenuous strength exercise programs could not be applied, presumably on the assumption that they might be harmful to the knee. Another concern might be that pain could limit the outcome of such programs. Another study investigated physical function and pain in patients with severe knee OA (19). They used a rehabilitation program including general fitness, balance, coordination, stretching and lower-extremity muscle strength exercises twice a week for 3 months. The rising from chair was found to be unaltered in their study. However, Gilsenan et al., (20) have demonstrated significant improvement in quadriceps strength between pre and post-exercise programs. Our results supported previous reports that indicated that elastic-bands were effective to improve physical strength and functional ability in older-adults (21). However, there is no consensus regarding the optimal OK and CK training program with elastic band for functional performance in women with knee osteoarthritis. In our study, chair-stand performance was significantly increased in CKG at the post-training period. Although there was no significant improvement in chair stand results between periods in OKG, it was found to be improved when compared with CG.

Safely ascending and descending stairs are essential daily living activities that are often difficult to perform for a patient with knee osteoarthritis (22). Physical therapists must routinely determine a patient's readiness to perform functional tasks such as stairs descent and stairs climbing which has a comparatively greater injury risk, particularly when patients initially attempt stairs descent (23, 24). In our study, stairs climbing time was improved between baseline and post-training period in OKG and CKG. The stairs descent performance was significantly improved in OK and CK groups when compared with CG.

After strength training, although we found increased walk distance and toleration to walk in women with knee OA, this did not reach statistical significance. Improvement of muscle strength is associated with time, intensity and volume of strength training. On the other hand, to our knowledge, aerobic capacity can improve in training sessions that consist of aerobic exercises. Researchers have demonstrated that a combined training program (strength and walking training) had greater effect on aerobic capacity in knee OA patients (25, 26). Declining balance, gait disorders, strength deficits, difficultly standing from a chair, and other impairments increase the risk of falls for older adults (27). Jones et al. (28) found reduced quadriceps strength and increased postural sway in patients with self-reported OA compared with controls. We used the equipment-based assessment of balance in our study and we observed decreased postural sway after training in patients with knee OA. Osteoarthritis of the knee may be risk factor for falls in older adults. Wegener et al. (29) hypothesized that the accelerated deterioration of strength and proprioception in knee OA patients may result in increased body sway and impaired balance. Using measures of static and dynamic balance, they found significantly greater body sway in 11 subjects with knee OA compared with a similar aged group of healthy adults.

Strength training of the lower extremities with elastic resistance also may improve balance and proprioception. A more direct method of balance training involves closed-chain strengthening, in which the lower extremity is challenged to maintain postural stability (30). We found that patients with knee OA improved in dynamic and static balance (open eyes) after 12 weeks strength training in CKG. There was no significant difference in dynamic and static (open eyes) balance between OKG and CKG. Static balance (open eyes) was

significantly different in OKG and CKG when compared with CG. The other study suggested that long term weight training and aerobic walking programs significantly improved postural sway in elders. Our study shows that OK and CK strength training with elastic band can give rise to significant reductions in knee pain when compared with the control group. This effect was not observed between baseline and the post-training period in CG. No significant differences were found between the OK and CK groups. In addition to improvements in pain, strength training also produced significant improvements in knee stiffness and physical function. The findings are consistent with previous investigators who have reported that exercise can reduce pain and increase the perceived and actual functional abilities of OA patients (31). Topp et al. (32) investigated pain and physical function in patients with knee OA. They used lower-extremity strength exercise with elastic band and isometric exercise 3 times a week for 16 weeks. Although Topp et al. used a different training program than used in our study, they also found significant improvement in pain and physical function after training.

In conclusion, although there was no significant difference between OK and CK groups, the strength training program resulted in significant improvement in the chair stand, stairs descent, and static balance performances and WOMAC pain, stiffness, and function scores in the training groups when compared to the CG.

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	B M ±SD	MT M ±SD	PT M ±SD	Time	Time x Group	G
Chair stand, reps				$F_{2,78}=6.743$ $p=0.002$	$F_{4,78}=2.981$ $p=0.024$	$F_{2,39}$ $p<0.$
OKG	14.69±3.94	14.50±1.63	16.69±2.52*			
CKG	13.19±3.96	13.81±2.48	16.88±2.85†§			
CG	11.70±2.36	11.00±1.41	10.90±1.10			
Stairs climbing, sec				$F_{2,38}=4.344$ $p=0.020$	$F_{4,78}=3.479$ $p=0.011$	$F_{2,39}$ $p=0.$
OKG	4.49±1.31	3.77±0.87	3.39±0.87‡			
CKG	4.54±1.23	3.78±0.57	3.64±0.70§			
CG	4.62±1.69	4.94±1.77	5.09±1.64			
Stairs descent, sec				$F_{2,38}=1.211$ $p=0.309$	$F_{4,78}=3.188$ $p=0.018$	$F_{2,39}$ $p=0.$
OKG	4.16±1.31	3.76±1.32	3.67±1.99*			
CKG	4.54±1.91	3.87±1.84	3.14±0.77†			
CG	4.84±2.04	5.88±2.95	5.84±2.62			
6-min walk, m				*$F_{2,78}=.057$ $p=0.944$	$F_{4,78}=3.470$ $p=0.012$	$F_{2,39}$ $p=0.$
OKG	469.85±62.30	477.49±91.04	499.21±78.51			
CKG	459.03±67.65	466.90±82.32	498.14±81.51			
CG	446.11±70.74	442.68±80.31	385.98±57.94			
Static balance (eyes open), score				$F_{2,38}=4.550$ $p=0.017$	$F_{4,78}=1.925$ $p=0.114$	$F_{2,39}$ $p<0.$
OKG	411.37±154.47	329.00±108.04	321.63±164.36*			
CKG	416.87±138.95	305.87±121.56	239.94± 66.96†§			
CG	528.20±200.60	599.10±231.36	534.90±168.82			
Static balance (eyes closed), score				$F_{2,38}=.277$ $p=0.760$	$F_{4,78}=1.201$ $p=0.317$	$F_{2,39}$ $p=0.$
OKG	1087.82±787.42	1236.44±801.64	1041.18±617.35			
CKG	1061.19±659.60	1129.81±776.97	1180.68±446.59			
CG	1051.80±746.61	762.20±753.82	1166.80±779.24			
Dynamic balance (eyes open),score				$F_{2,38}=7.281$ $p=0.002$	$F_{4,78}=0.641$ $p=0.635$	$F_{2,39}$ $p=0.$
OKG	1670.06±151.14	1573.06±595.67	1440.12±698.59			
CKG	1800.75±606.77	1513.68±394.36	1303.25±406.51§			
CG	2080.50±582.78	1577.50±628.93	1539.10±497.51			
WOMAC pain, score				$F_{2,38}=14.543$ $p<0.001$	$F_{4,78}=2.525$ $p=0.047$	$F_{2,39}$ $p=0.$
OKG	4.44±1.91	1.59±1.49	0.97±1.27*‡			
CKG	3.78±2.26	1.90±1.86	1.50±1.43†§			
CG	4.45±2.36	3.85±1.63	4.10±1.45			
WOMAC stiffness, score				$F_{2,38}=5.651$ $p=0.007$	$F_{4,78}=2.689$ $p=0.037$	$F_{2,39}$ $p=0.$
OKG	2.81±2.68	1.01±1.14	0.70±1.01*‡			
CKG	3.90±3.28	2.10±2.17	1.40±1.70†§			
CG	3.75±2.88	3.25±2.44	3.75±2.28			
WOMAC function, score				$F_{2,38}=17.567$ $p<0.001$	$F_{4,78}=3.514$ $p=0.011$	$F_{2,39}$ $p<0.$
OKG	4.10±2.36	1.82±1.92	0.83±1.13*‡			
CKG	4.35±2.42	2.48±1.77	1.42±1.41†§			
CG	5.11±2.34	4.91±1.94	5.11±1.92‖			

Values are mean ± SD, standard deviation. OKG, open kinetic chain group; CKG, closed kinetic chain group; CG, control group B, baseline; MT, mid-t PT, post-training; rep, number of repetitions.

* p<0.05, significant difference between OKG and CG; † p<0.05, significant difference between CKG and CG; ‡ p<0.05, significant difference versus b for OKG, one-way repeated-measures ANOVA; § p<0.05, significant difference versus baseline for CKG, one-way repeated-measures ANOVA; ‖ p<0.05, significant difference versus baseline for CG, one-way repeated-measures ANOVA.

Table3: Functional performance and WOMAC changes over time between groups

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Higher Longevity and Post Retirement Productive Engagements of University Retired Faculty Members

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ABSTRACT

The age composition is changing rapidly due to a pre-demographic transition happening in Pakistan during the current era. As a result the elderly people (60+) are gradually increasing in the population pyramid. The focus of present research was specifically to identify the re-working habits of university retired faculty members after their retirement. It was hypothesized that the increase in life expectancy is enhancing the post retirement productive engagements among elderly people (60+).

In the present study 120 retired faculty members above age 60 were interviewed by using convenient sampling technique about their presence in the labour market in the later years of their lives.

The findings of the study showed that engagements of retired faculty members in economic productive activities were directly associated with increase in life expectancy, but other factors were also contributing in their re-employment. Most of the respondents were found working but the few who were not part of the labour force, was due to bad health or cultural taboos. It was observed that the increase in life span was basically persuading the elderly people (60+) to be a part of the labor market to meet their basic needs, family responsibilities and manage time after retirement.

Keywords: Life Expectancy, Elderly People, Retirement, Productive Engagements, Re-employment

Introduction

Throughout the world, life expectancy is increasing and it is gradually producing more elderly people (60+). According to the United Nations (2009), the number of elderly people has tripled over the last 50 years and it will again triple over the next 50 years.

The developing countries are facing a pre-demographic transition stage. These countries have a huge proportion of adult population in theirpyramid, which is encouraging more elderly people (60+) in the coming decades. The growth of elderly people (60+) is twice as fast in developing countries, 3.0 percent more than developed countries at 1.4 percent (Hashmi, 2003). The betterment in social conditions, such as primary education, improved health facilities, better sanitation, preservation of food, improved hygienic conditions, industrialization, improvement in living standards and modern medical technologies played a vital role in the increase of life expectancy of developing countries.

World Health Organization (2000) released a press note that the Asian countries are improving dramatically in health profiles and healthy life expectancy. Therefore the aging

population is increasing more rapidly in Asia compared to rest of the world and it will occur in some Asian countries at a much earlier stage of economic development (Hashmi, 2003). In view of this momentum, it is expected that the gradual increase in elderly people (60+) would bring a dramatic change in age composition of the population. It would increase the dependency ratio and the situation would encourage the elderly people (60+) to remain active in economic productive activities in the later years of their lives.

Financial needs are continuous during various life courses of a human being. In the past, family ties were strong in South Asian countries and elderly people (60+) were taken care of by families, both physically and financially. Currently, the conversion of joint families into nuclear families is also altering previous practices. This rapid change in the family system is one of the consequences of urbanization and in most cases this abates the care and support of elderly people in the family (Mansoor, 2008). Therefore, the lack of financial and social support is pushing elderly people (60+) to join the work force in later years of their lives.

Pakistan is a developing country with a population of 180 million (Population Reference Bureau, 2009). The age composition is 45 percent child, 48 percent adult and 7 percent elderly (60+) people (National Institute of Population Studies, 2008). The decline of the mortality rate is faster, life expectancy is increasing and people are breathing up to 63 years in Pakistan (WHO, 2008). The situation is predicting more elderly people (60+) in Pakistan during coming decades. According to UN (2009) population projections, the proportion of elderly people (60+) will be 15.1 percent of the total population by 2050 with an annual growth rate of 3.9 percent in Pakistan.

The retirement age is 60 years in the public sector institutions of Pakistan but there is no age limit in the private sector to continue the services. In the past, under the influence of traditional myths and beliefs, the people left work at the age (60) due to illness, disease or desire by children. Their departure from the work force was not because of their own choice, basically, the socially constructed taboos were not permitting them to do work. However, gradually the situation is changing; various factors such as an increase in life expectancy, family transition, resource scarcity and socio-economic development are bringing them at work places. In this era, the following social and cultural factors are playing a proactive role in the involvement of elderly people (60+) in the labor market.

Initially, education plays an eminent role in the Active Daily Living (ADL) after age 60+. Medical science suggests that the burden of disease can be reduced by improving Personal Hygienic Conditions (PHC) in later years of life. This could only be possible, if the elderly people (60+) have information about PHC and ADL. Most probably, the elderly people (60+) with higher education are already aware of these conditions to sustain their health at maximum level. Education improves physical health and functioning and therefore employment status (Mirowsky & Ross, 2003). So, late physical deterioration and further engagements in the labor market are linked with the educational background of elderly people (60+).

Secondly, health status is one of the most important indicators to determine economic engagements of elderly people (60+) in later years of their lives. The degeneration process of old age depends on early socio-economic status, routines of life, daily activities and Personal Hygienic Conditions (PHC). Many elderly people (60+) are successful in maintaining their health, at maximum standards by adopting various measures like regular exercise, diet patterns, regular medical checkup and doing some work. It is observed that health can be affected by having a job, its nature and status; full-time employment slows the physical deterioration with age (Rose & Mirowsky, 1995). Modern medical interventions have also improved the subjective and objective health indicators of elderly people (60+) in recent decades. So, health status is playing a dual role in the engagement of elderly people (60+) in the labor market; improved health status is supporting them to be active in the labor market and the available jobs / work are helping them to maintain their satisfactory health status.

Thirdly, urbanization is promoting a nuclear family system and this is encouraging or forcing the elderly people (60+) to be engaged in economic productive activities at later years of lives. The living household status of elderly people (60+) in Pakistan is as follows:

Aging of the Population

Elderly people 60+	Household status
One person	3.1 %
Nuclear	26.2 %
Extended	70.7 %
Non-related individuals	0.0 %
Total	100%

In Pakistan, 11.3 percent of elderly people (60+) are still heading the household. The proportion of elderly people (60+) living with their sons or daughters is 40 percent; 10.3 percent are living with their spouses; 18.3 percent are residing with their blood relatives and 17 percent are living with their other relatives (Hashmi, 2003). The elderly people (60+) having the status of "Head of Family" and living with spouses, blood relatives and other relatives are more expected to be a part of the labor market.

Fourthly, resources and household income affects the old age labor force participation rates. Increase in costs and unemployment of adults is resulting in insufficient household incomes. A concept of hand to mouth living is very common and the participation of all male family members in the labor market is considered essential to meet the domestic needs. As a result, elderly people (60+) are forced to earn their needs in old age.

Fifthly, current employment status is associated with previous employment experience. The previous employment influences the availability of suitable jobs in old age (60+). Elderly people (60+) having specific field related skills and prior experiences are finding jobs easily in later years of lives.

Sixthly, in urban areas, people are associated with jobs or business related engagements for bread and living, whereas in rural areas, they are associated with agriculture usually. In cases of less financial support, the elderly people (60+) face a number of difficulties to fill their basic needs. Retirement, lack of agricultural land and absence of children for financial support persuade the elderly people (60+) to remain active in the labor market both in urban and rural areas.

Seventhly, the elderly people (60+), who work in prestigious public or private sector organizations before their retirement, have confidence to do work after their retirement, because they have adequate understanding of the working milieu, organizational behavior and market dynamics. They have potential and experience to face the challenges in other organizations during their next jobs. Therefore, the employers do prefer to re-employ the retired persons against vacant positions where they fit.

Eighthly, the institution of family also imparts self-confidence among elderly people (60+) to do something after their retirement in both cases; professional education plus experience in the most demanding disciplines, or low family income. Self-confidence regulates the access to productive engagements after first retirement among elderly people (60+) and affects individual's earning and household income.

Lastly, the majority of people have enough time in old age after retirement and they have very few options on how to spend their time in some activities. During the employment period they had mobility and specific working hours to perform the given tasks. Their past habits of official working and independent mobility push them to do something after retirement.

Rationale of the Study:

The employment rate is gradually increasing in Pakistan since the last decade. The labor force participation rate was 29.83 in formal sectors at the beginning of this decade (Federal Bureau of Statistics, 2003) and it has reached up to 42.84 in all formal sectors observed in a national survey 2005-06 (Federal Bureau of Statistics, 2007).

In the past, life expectancy declined due to high morbidity and mortality rates in Pakistan. Most of the people died before reaching at the age of 60. Further, religious and social myths about respect for elderly people (60+) did not permit young members of families, to encourage or force elderly people (60+) to be engaged in economically productive activities. Besides, re-employment after retirement was difficult in the past due to two reasons; a huge proportion of the youth population in the pyramid and the slow pace of economic development in the country.

Currently, innovation in medical interventions has brought remarkable changes in morbidity and mortality rates. The rapid in-migration from rural to urban areas is marching towards more urbanization; high rate of urbanization means a more nuclear family system. The increase in life expectancy and shifting towards a nuclear family system has minimized the restrictions on elderly people (60+) to be engaged in economic productive life. Foreign investment increased during this decade, although currently it is moving towards a decline in the last two years but this has created many jobs in almost all sectors.

Costs have increased on a rapid scale but resources of jobs holders remain fixed. By meeting household needs, the people working in the service sector have remained unable to gather sufficient resources to meet their basic needs in old age after their retirement. Retirement is accorded after the service of 25 years, or at the age of 60 in Pakistan. When people near retirement age, they plan their bonus years of life, because they have to depend on a pension of 45% of basic pay in the absence of any other financial support. This amount remains insufficient to cater for routine household expenses. So when they do not find adequate financial support from any side, they prefer to remain active in the labor market after their first retirement but with the condition of availability.

The investment of Government in education and health sectors was very low compared to other budgets during the last decades. During this decade, according to the needs of population, it has been increased. The people working in the education sector, especially engaged in teaching, were deprived of various facilities of life such as own house, transport, standard health care services, financial resources for the marriage of their children etc. Their salaries were limited and not fulfilling their own needs or those of their families. The situation becomes worse after retirement, if their children do not support them or the cumulative household income remains low.

This study has been designed to find a link between increased life expectancy and re-employment of elderly people (60+) and also the subsequent factors, as earlier discussed. For this purpose, the retired faculty members (60+) of university were selected as a unit of analysis because they had a single type of professional employment. Furthermore, they had the same level of education with subject variations, similar pay packages with pay scale variations and possible similar employment opportunity after retirement.

In the past, the professors of a college or university had few options to do something after retirement. They ran private academies, coaching centers or were hired as visiting professors in a teaching institution. A few years ago, the Government paid attention towards improvement of the education sector, especially higher education. The elderly higher education institutions were strengthened with adequate financial support and various new institutions were established throughout the country. This development increased the demand for retired teaching staff in the education market.

So, the study focuses on re-employment among university retired professors. Further, if this is happening then what are the factors behind this productive change? Is increase in life expectancy the salient cause or are other socio-cultural factors also contributing towards their re-employment. This study

explores whether the elderly people (Retired Faculty Members of the University of Punjab, Lahore) are engaged in economic productively after their retirement or dependent on their younger family members.

Objectives

- To find out the relationship between increased life expectancy and economic productivity of elderly people (60+)

- To identify the factors behind the continuity of jobs or business among elderly people (60+) in the later years of their life

- To see the association between educational level and post retirement employment opportunities among elderly people (60+)

- To compare the health status of re-employed and un-employed elderly people after their retirement (60+)

Literature Review:

Kaldi (2005) conducted a study on the employment status of the elderly people in Tehran. It was found that 86 percent of the interviewees were unofficially employed, while 13.6 percent had an official job. Also, 57.8 percent of the interviewees retired earlier than the due time and 35.2 percent of them retired on time. 4.4 percent of them were re-invited to work and 2.2 percent retained their occupation after retirement age. 95.7 percent of the interviewees are working after retirement as 7.2 percent of them have two jobs presently.

Rennemark and Berggren (2006) found in a study that there are differences in personality and in leisure lifestyle between individuals who have retired at the age of 60 and individuals who still work at the same age. The effects of health, work satisfaction, educational level and household economy were taken into account. The study suggests there is a possible stress-reducing effect of participation in cultural/intellectual activities. This effect may strengthen the ability and motivation to continue working at the age of 60 years.

Gökce-Kutsal, Özcakar, Arslan, and Sayek (2003) conducted a study in Turkey and reported that out of 680 physicians, 60.8 percent were still actively working. But 39.2 percent were not engaged in some professional activities. Of the physicians who were working, 0.8 percent classified their working conditions as very bad, 9.7 percent as unsatisfactory, 37.7 percent as satisfactory, 33.6 percent as good, and 18.2 percent as excellent. The number of physicians with a disability was 11.8 percent.

Cresson (2005) in a study quoted that "Flexibility is the new concept, because mature workers have experience, knowledge and expertise. Smart corporations are finding ways to entice experienced workers to remain on the job if they are healthy".

Methods and Materials

It was hypothesized that "Increase in life expectancy is enhancing the post retirement productive engagements among elderly people (60+)". The post retirement productive engagement was a dependent variable in the hypothesis and increase in life expectancy was an independent variable in the hypothesis. However, there were several other independent variables such as, self perceived health status, economic status, marital status, number of dependents, and those were used in this study.

The vicinity of Lahore was the universe of study from where the subjects (retired teaching staff) of the Punjab University, Lahore were selected for interview. For this purpose, a list of retired faculty members was obtained from the administration office of the Punjab University, Lahore.

Three groups of the retired faculty members were studied to find the impact of increased life expectancy and other factors on their re-employment. The availability of subjects was not an easy task, thus purposive sampling technique was used to determine the sample size. A total of 120 retired faculty members were studied according to their availability. The groups of respondents are below:

Sr. No.	Subjects retired during	Number of subjects
1	1990-1995	40
2	1996-2000	40
3	2000 up till now	40

Quantitative research method was used in the current study and a well structured questionnaire was prepared to collect data. Five percent interviews were scheduled as pre-test prior to the final run. During this pre-testing certain weak areas of the questionnaire were identified, and some questions that were too vague were modified. The necessary corrections were made which were followed during final interviews.

The data collection was completed by the end of the 7th week. The contact numbers or addresses of the respondents we took from the respective departments of the university, some on telephone and some on personal visit. It was rather difficult to develop a rapport with respective departments to obtain the phone numbers and addresses of subjects. After curbing the list to 500 retired professors including their contact numbers and addresses, 235 respondents were finalized in the vicinity of Lahore. A total 120 retired faculty members were interviewed according to their availability. The availability and willingness of subjects to participate in the study was a bit difficult due to their engagements and schedule of routine life. However, it was managed by taking interviews as per their availability and at their convenience. During the interviews of faculty members, it was also observed that the retired faculty members desired that any body should sit with them for hours to listen to their past experiences. They were confident in providing proper solutions for the current issue through their expertise in relevant fields. On average, one interview took 20 to 30 minutes.

Ethical Considerations:

The research proposal was presented along with questionnaire before Ethical Review Committee, constituted to review the research proposal/s written by faculty of social sciences at University of Gujrat, before collecting data.

The committee reviewed the proposal critically and guided us to exclude the questions related to the emotional attachments of respondents with their children after retirement, due to their cultural sensitivity. The committee also guided us to ask indirect questions related to their income before and after retirement. The questions related to relationships or attachments with spouses, were also excluded from the designed questionnaire.

It was also made clear to the Ethical Review Committee that the names, addresses and contact numbers of respondents would be kept secret. The information obtained from respondents will also be kept anonymous and used for this study only. The researchers were certified by the Ethical Review Committee to conduct this research after making certain amendments suggested by the committee. A consent form was also attached with the questionnaire and filled out by the respondents before interviewing during data collection.

General Findings:

Retirement age is 60 years in both public sector organizations in Pakistan. The purpose of the study was to explore the re-employment, if any, of retired people from their first jobs. Different statistical techniques were used to test the hypothesis and measure the objects of the study.

The following findings were commonly abstracted from the study:

Age of Respondent	Productive Employment after Retirement		Total
	Yes	No	
60-64	32	8	40
65-69	38	2	40
70+	30	10	40
Total	100	20	120

Table 1: Age of Respondents and Productive Employment after Retirement

The Table reflects that forty subjects were interviewed in the age group of 70+. Thirty respondents were working after their retirement while ten out of the total respondents in this age group were not working after their retirement. The majority were females, whowere facing various health problems and the rest were house bound due to various domestic responsibilities or pressures. Another group of forty respondents in the age group of 66-70 year was interviewed. Within this group, thirty eight respondents were engaged in various economic productive activities and only two were not working. Among the age groups of 60-65, two male and six female respondents were not a part of the labor force market. The major reason for their absence from the labour force market was poor health or disabilities. However, it was clearly observed that an increase in the life span of elderly people (60+) was a major cause of their paid work in later years of life.

Productive Employment of Respondents after Retirement	Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
Group 1	Yes	100	.83	.50	.000
Group 2	No	20	.17		
Total		120	1.00		

Table 2: Proportion test

Table 2 shows the persons who work after their retirement are significantly different to those who are not working. The proportion of the 1st group is higher than the other one at the .05 level of significance.

Family status	Productive Employment after Retirement		Total
	Yes	No	
Single	22	2	24
Nuclear	22	8	30
Extended	48	8	56
Joint	8	2	10
Total	100	20	120

Table 3: Family Status and Productive Engagements of Respondents after Retirement

Table 3 reflects that 24 respondents were living alone and 22 out of this number were active in economic productive life after their retirement. 30 respondents were part of a nuclear family system. This situation created an atmosphere for re-employment for elderly people (60+) and 22 were working after their retirement to provide for their basic needs and spend a healthy life. Most interestingly, 56 respondents were living in the form of extended families. These respondents reported that they have huge expenses, so the situation was encouraging, as well as compelling them to work after their retirement. Within this category, 48 respondents were working after their retirement and only 8 of them were not working due to poor health, and financial and moral support from their families. In the last category, only 10 respondents were living in a joint family system due to the traditional myths of unity and current settlement problems in big cities. To meet the needs of family and settlement in big cities, 8 respondents were working to help their children financially after the completion of their first job tenure.

Educational status	Productive Employment after Retirement		Total
	Yes	No	
Graduation	6	0	6
Masters	20	16	36
M. Phil	12	0	12
PhD	62	4	66
Total	120	20	120

Table 4: Educational Status and Productive Engagement of Respondents after Retirement

The respondents had various educational backgrounds. A huge number had a doctoral degree in their relevant fields. Others were M. Phil, Master and Undergraduate in respective disciplines. It was found that the respondents with doctorate level education had more opportunities in the market after their retirement. 62 out of 66 respondents with PhD degrees were working after their retirement in different sectors. Nearly 6 percent of respondents had M. Phil degree and all were working after their retirement. But the situation was not the same with 30 percent of Master degree holders, because out of 36 respondents 16 were not working after their retirement. However, all the undergraduate respondents were working after their retirement in the later years of their lives.

Self Reported Health Status	Productive Employment after Retirement		Total
	Yes	No	
Excellent	40	0	40
Good	32	0	32
Fair	23	8	31
poor	5	12	17
Total	100	20	120

Table 5: Self Reported Health Status and Productive Engagements of Respondents after Retirement

Table 5 (previoous page) is reflecting that 40 respondents reported excellent health status and they were a part of the economic market in the later years of their lives. The respondents with good health were also working in the labor force market. About 23 respondents were interacting with fair or satisfactory health status, therefore, 8 out of these respondents were not working. It was reported by 17 respondents that they were facing poor health and only 5 respondents were working with poor health status due to lack of financial support from their family members. It was found that the respondents who attained a new job after immediate retirement were enjoying good health compared to others.

Previous Salary	Percent	Current Salary	Percent
<10000	6.7	1000-50000	65
10000-25000	65	51000-100000	28.3
25100-50000	26.7	101000-150000	1.6
Total	**98.3**	**Total**	**94.9**
Not Responded	1.7	Not Responded	5.0
Total	**100.0**	**Total**	**100.0**

Table 6: Previous & Current Salary Package of Respondents

Data shows that the Professors had Rs. 25000 to Rs. 50000 per month salary during previous jobs on average but currently, they were earning 2 times, in some cases 3 times more income by joining new jobs after their retirement. Similarly, Associate Professors had Rs. 17000 to Rs. 30000 per month salary and currently they were earning more money by adopting a new career after their retirement. Similarly, Assistant Professors were earning Rs. 12000 to Rs. 20000 per month in previous jobs but now they were charging double salaries in new jobs.

Table 7 (opposite page) is reflecting that 80.0 percent of respondents depicted that their personal interests and excellent health conditions persuaded them to do work after their retirement from their first jobs. About 55.0 percent of respondents shared that they had to fulfill their basic needs therefore they are working after their retirement. Nearly 30.0 percent of respondents explained that they had to meet family responsibilities in old age therefore they are working after their retirement. The majority of the respondents (65.0 percent) reported excellent health status. They were working just to maintain their health, be active and energetic and to reduce the burden of old age from their families, whereas 16.7 percent of respondents reported that health care need is one of the major factors behind their re-employment after their retirement from previous jobs. They had no financial assistance from their children to meet their health care needs in the last phase of life. The data indicates that 80.0 percent of respondents agreed that they were eager to manage their time only, so they were working after retirement. About 70.0 percent of respondents shared that their children are encouraging them to be engaged in economic active life. But 11.7 percent of respondents were also found to be working without moral support of their children. About 76.7 percent of respondents also described that their children are not forcing them to be engaged in economic activities in the last span of their lives. They are working due to their own will. All the above factors were encouraging the respondents to be engaged in economic productive activities after their first employment.

Age group		Age of Re-employment after Retirement					Total
		At age 61	At age 62	At age 63	At age 64	At age 65	
60-64	Count	30	4	0	0	0	34
65-69	Count	34	0	0	0	2	36
70+	Count	24	0	2	4	0	30
Total	Count	88	4	2	4	2	120

p-value = .036

Critical Region:

Reject Ho if p value is less than ? (level of significance)

Table 8: Age Group and Age of Re-employment after Retirement

The table shows that since p value is less than (level of significance) we reject Ho and accept H1 and conclude that there is an association between age groups of respondents and age of re-employment after retirement.

11.1) Personal Interest		
Response	**Frequency**	**Percent**
Yes	96	80.0
No	2	1.7
Not responded	22	18.3
Total	120	100.0
11.2) Basic Needs		
Response	**Frequency**	**Percent**
Yes	66	55.0
No	32	26.7
Total	98	81.7
Not responded	22	18.3
Total	120	100.0
11.3) Family Responsibilities		
Response	**Frequency**	**Percent**
Yes	36	30.0
No	62	51.7
Total	98	81.7
Not responded	22	18.3
Total	120	100.0
11.4) Health Needs		
Response	**Frequency**	**Percent**
Yes	20	16.7
No	78	65.0
Total	98	81.7
Not responded	22	18.3
Total	120	100.0
11.5) Time Management		
Response	**Frequency**	**Percent**
Yes	96	80.0
No	2	1.7
Total	98	81.7
Not responded	22	18.3
Total	120	100.0
11.6) Encouragement from Children		
Response	**Frequency**	**Percent**
Yes	84	70.0
No	14	11.7
Total	98	81.7
Not responded	22	18.3
Total	120	100.0
11.7) Forced by Children		
Response	**Frequency**	**Percent**
Yes	6	5.0
No	92	76.7
Total	98	81.7
Not responded	22	18.3
Total	120	100.0

Table 7: Factors Encouraging or Forcing for Re-employment to Respondents

Discussion

The research hypothesis of the current study was formulated as "Increase in life expectancy is enhancing the post retirement productive engagements among elderly people (60+)". In Pakistan, it is has been standardized that the elderly people (60+) must be retired from their jobs because after a specified age they are not able to perform well in jobs both physically and mentally. But the research hypothesis proved that the majority of the elderly people (60+) were engaged in various economic productive activities after their retirement. Increase in life span had a direct link with their re-employment or engagement in business in the later years of their lives. Indeed, the factor of age was playing a critical role in their re-employment along with various socio-cultural and economic factors that were also encouraging or forcing them to participate in the labor market. Therefore, most of the retired faculty members were still working after their first retirement. Some of them started work immediately after retirement and others took a break for some years due to various domestic as well as opportunity related issues. Some of the respondents were forced and others were supported by their families or spouses to work, and fulfill their as well as the family's needs. Basic needs and various family responsibilities were working as push factors for re-employment among retired faculty members. In some cases re-employment was due to pressure for the accomplishment of various tasks in old age e.g., educational expenses of children, money for their daughter's marriage, own house dream, health care needs etc. It was found that the retired faculty members had more moral and financial support from their children or relatives living in a joint family system but the huge proportion of this category was still working to manage their leisure time and practice their learning. The people living in a nuclear family system were forced to work in later years of life because they had no other options to earn their bread and meet domestic needs. Current health status was also liked with active life of retired faculty members. Most of the re-employed faculty members were enjoying excellent health due to their engagement in the labor market. They were happy to be a part of professional life even in the last span of their lives, whereas the majority of respondents who reported bad health and minor disabilities were not working after their retirement. Education and skills are admirable in the labor force market. The employers give preference to well educated and experienced professionals to fill vacant positions. Being highly educated and having vast relevant experience, the retired faculty members of the university were in high demand in the dynamic market of education. In Pakistan, a huge investment in public and private sector universities is still creating sufficient space for these retired professionals. Consequently, they are being re-employed in educational institutions, NGOs working in the education sector, Government Departments and Higher Education Commission at various positions

with higher salary packages as compared to previous jobs. Personal interest and time management were also encouraging the re-employment among retired faculty members significantly. Marriage and family ties encouraged the elderly people (60+) to work for the completion of their own and family member's needs. Unmarried and separated people were also working due to lack of social and financial support from fellows. The elderly people (60+) who were not working after their retirement, were performing various religious, social or household duties. Most of the retired faculty members had a strong belief that "earned bread by hand is considered as worship to Allah". They shared that Creation, Innovation and Conversion of knowledge from one generation to another generation is their prime responsibility. Most of them considered such engagements as virtue in the later years, therefore they remained active in the labor force. Usually gender based variations were common in the traditional society of Pakistan in the past and occurs still to a large extent in all segments of society. Education and employment were the hot areas of such discriminations. Females remained less involved in the labor force after their retirement. Some of the female faculty members desired to be a part of professional life after their retirement but social taboos and cultural practices did not permit them to do so. These females had excellent financial and family support from their spouses and children. In spite of that they had a desire to do something which may enable them to remain active during various time consuming activities within their relevant profession. The retired faculty members who were not working, were finding some literary, religious and household activities to spend their time on after retirement. Most of the re-employed respondents were satisfied with their re-employment in the post retirement age and feeling secure in all aspects of life. The respondents who were actively participating in economic productive endeavors reported that they were more satisfied with the overall behavior of their children towards their personality, life and activities. The respondents who were not working had a desire to work but were not working due to various constraints. The high urge and practice of re-employment among retired faculty members of the university was found to be due to increase in their life span, health and opportunities.

Conclusion

It is concluded that the engagement of elderly people in economic productive work after retirement is associated with an increase in life expectancy directly, but various other factors are also contributing to their re-employment indirectly. In nearly all groups, about 84 percent of respondents were re-employed in various organizations / institutions at white collar positions with attractive salary packages. In the eldest group (70+), almost 75 percent of retired faculty members were working. It reveals the association between increased life span, opportunities, selected socio-cultural factors and re-employment. A similar situation existed with the older group (65-69), where the faculty members, had good health, social support, and domestic obligations thus, they were working after retirement. In the old group (60-64), nearly all male faculty members were working but the females were engaged with kitchens and looking after their grandchildren, therefore they were not working. The re-employment of this age group was based on opportunities and excellent health status. Overall, only 16.6 percent of respondents were not working and one third of them were female but they had a desire to work after their retirement. The hypothesis of the study proves that the elderly people are working in the labor market for their interest, time management, and to meet basic needs and family responsibilities after their retirement, due to the gradual increase in their life spans in Pakistan.

Recommendations

The Government should raise the retirement age (60) of faculty members working at public sector universities by keeping in view the increase in life expectancy over previous decades. Currently, the faculty members having a PhD in any discipline are scarce in higher educational institutions as compared to international standards. Besides, faculty members without a doctoral degree, have valuable working experience in their relevant fields,and are also an asset, so extension of their retirement age limit will help them as well as the community, both financially and intellectually.

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The Destitute Elderly in Bangladesh: Socio-economic Perspective

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1. Introduction

Human life is normally divided into five main stages, namely; infancy, childhood, adolescence, adulthood and elderly. Among the stages of human life, the elderly stage is the most vulnerable and problematic (Rao, 2006:345) because in the elderly stage, physical strength deteriorates, mental stability diminishes, money power becomes bleak and eyesight suffers a setback. Old age is not free from problems, though from the point of view of the wider society the problems of old age are comparatively less from the standpoint of the individual, the problems are not less significant. It is only for a blessed few that old age may prove to be a stage of contentment and satisfaction. For a large number of people it may actually become a period of disappointment, dejection, disease, repentance and loneliness. In order to find some solace for their distressed mind a good number of people turn towards religion. They become more and more other-worldly in their attitude. Some seek satisfaction through the achievements of their children or grandchildren. Some old people cut off their relations with the external world and prefer to live in isolation. So, elderly people need support from others. In the early stages of human history, the families or groups in society met such supports. In the medieval age, for the first time in human history old homes were established in England named Monasteries (meaning a building in which monks live). These Monasteries served as orphanages, as homes for the old, the sick and the handicapped, and as a refuge for the homeless, continuing the tradition of the Greek xenodochia-guest houses (Friedlander, 1955:9). Later on, maternity and old age homes, health visiting, home nursing, clinics and sanitariums for tubercular patients, hostels for mentally defective children and adults, were established under the auspices of voluntary agencies along with family (Friedlander, 1955:59). It is evident that both institutional and family services exist in society for the care of the disadvantaged groups of people including destitute elderly in the west. In the Indian sub-continent, family bondage is very strong and highly appreciated, especially in Bangladesh. In Bangladesh, at present, initiatives to meet the needs of the elderly through both institutional and family categories although institutional initiatives are extremely limited so far. Customarily family is solely responsible for looking after the destitute elderly. But the ability of the family aged care homes to take care of the elderly has been weakened severely due to poverty, industrialization, urbanization and other reasons. So the elderly people are falling into destitute situations day by day. Many studies have been conducted so far on the elderly and their welfare, but none of those studies have addressed the destitute elderly issue clearly, so, this study has focused exclusively on the socio-economic situation of the destitute elderly in Bangladesh.

2. Theoretical Explanation of the Destitute Elderly

Old age is an obvious reality and the last stage of the human life cycle. It denotes the later stage of human life. The term elderly is applied to those aged 60 and over in conformity with the International Plan of Action in Ageing adopted by the World Assembly of Ageing, held in Vienna in 1982 (Kabir, 2003:64). On the other hand, destitute means a situation in which people cannot fulfill their basic needs such as food, clothing, medicine, shelter etc. Broadly speaking, destitution is an extreme state of poverty, in which a person is almost completely lacking in resources or means of support (Islam, 2007:24). Elderly refers to old age people. However age limit may vary in different societies, such as, in the USA people over 65 years are considered as elderly. In Bangladesh people over 60 years of age are generally considered as elderly. All elderly need some services as in most cases they are unable to meet their needs by themselves. However, it may differ according to their differential conditions, because different groups of elderly have different types of needs. That means their needs are not the same in nature. For example, some elderly may remain physically able and can work, some may be economically secure as they have enough assets and some may have no means of fulfilling basic needs. This group of the elderly in Bangladesh (those who have no means of fulfilling their basic needs) is larger than others. Actually they are destitute elderly. So, in this study, by destitute elderly, I mean those who are aged over 60 years and unable to fulfill their basic needs such as food, clothing, shelter, health etc. on their own. In Bangladesh, the Old Age Allowance (Boisko Bhata) of the Government of Bangladesh provides to the destitute elderly only. So by definition, they are destitute. Besides the old home (aged care home) named 'Old and Child Rehabilitation Center' of Hotapara, Gazipur also provides services to only the destitute elderly keeping them in the Old home. So, the elderly receiving Old Age Allowance (Boisko Bhata) from the government and the inmates of the above mentioned old home (Old and Child Rehabilitation Center) have been defined as destitute elderly.

3. Methodology of the Study

Data was collected from the two categories of destitute elderly. One is the destitute elderly who live in the old home named 'Old and Child Rehabilitation Center' and another is the destitute elderly who live in the family environment and receive 'old age allowance' from the government. All inmates of the old home were selected and 144 elderly were selected from the family by multi-stage sampling technique for the interview. Data has been presented and analyzed in tabular form and different statistical tools.

4. Discussions and Results of the Study

Data was computerized and analyzed using SPSS 11.5 and MS Excel software. Data has been presented through univariate, bi-variate and multivariate tables. Various statistical techniques such as frequency distribution, central tendency, correlation and test of significance have been used to analyze the data.

4.1. Demographic Characteristics of the Destitute Elderly

4.1.1. Age Structure of the Destitute Elderly

Age is the main factor of becoming elderly. The process of elderly absolutely depends on age. It was a difficult task to identify the age of the elderly accurately as most elderly interviewed in this study were unable to figure out their accurate age. I tried to estimate their age using some memorable moments or events like year of marriage, year of their first child born, liberation war and significant socio-political events and relate these events to their approximate age. Data indicates that the age of the destitute elderly is considerably high and it is higher for males than females. The difference in the age structure among the destitute elderly by categories is statistically significant. The destitute elderly living in the Old home are more aged than the destitute elderly living with family as we see that 15.1 percent of the destitute elderly living in the Old home belonging to the 80+ years category compared to only 4.9 percent of the destitute elderly living with family (Table-1).

Age (Year.)	Categories and Gender						Total		
	Old home			Family					
	Male	Female	Total	Male	Female	Total	Male	Female	Total
60-70	33 (43.4)	47 (74.6)	80 (57.6)	32 (44.4)	42 (58.3)	74 (51.4)	65 (43.9)	89 (65.9)	154 (54.4)
70-80	25 (32.9)	13 (20.6)	38 (27.3)	37 (51.4)	26 (36.1)	63 (43.8)	62 (41.9)	39 (28.9)	101 (35.7)
80 & More	18 (23.7)	3 (4.8)	21 (15.1)	3 (4.2)	4 (5.6)	7 (4.9)	21 (14.2)	7 (5.2)	28 (9.9)
Total	**76 (100.0)**	**63 (100.0)**	**139 (100.0)**	**72 (100.0)**	**72 (100.0)**	**144 (100.0)**	**148 (100.0)**	**135 (100.0)**	**283 (100.0)**
Chi-Square	*Value=15.877 DF=2 Sig.=0.000*			*Value=3.415 DF=2 Sig.=0.181*			*Value=13.338 DF=2 Sig.=0.001*		

Table 1: Age of the Destitute Elderly by Categories and Gender

It appears that the higher the age, the more destitution is assumed, and the elderly living with family are more destitute than the elderly living in the Old home, at least in terms of physical ability related to aging process.

4.1.2. Religious Affiliation of the Destitute Elderly

No society in the world is free from the influence of religion. In established societies, religion is one of the most important institutional structures making up to the total social system. Table 2 presents the religious affiliation of respondents of the study. It is clearly seen that majority of the destitute elderly are Muslims in both the categories. About 91.4 percent destitute elderly living in the Old home are Muslim, followed by 7.2 percent Hindu and 1.4 percent Christian. On the other hand, there are 92.4 percent Muslims and 7.6 percent Hindu in the family setting. No Christian is found in the selected family for the study. Traditionally, Bangladesh is a Muslim dominated country. Therefore, it has been reflected in the present study.

Religion	Categories				Total	
	Old home		Family			
	Number	Percentage	Number	Percentage	Number	Percentage
Islam	127	91.4	133	92.4	260	91.9
Hindu	10	7.2	11	7.6	21	7.4
Christian	2	1.4	-	-	2	0.7
Total	**139**	**100.0**	**144**	**100.0**	**283**	**100.0**

Table 2: Religious Affiliation of the Destitute Elderly by Categories

Marital Status	Categories and Gender						Total		
	Old home			Family					
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Never Married	12 (15.8)	1 (1.6)	*13 (9.4)*	1 (1.4)	2 (2.8)	*3 (2.1)*	13 (8.8)	3 (2.2)	*16 (5.6)*
Currently Married	26 (34.2)	6 (9.5)	*32 (23.0)*	44 (61.1)	5 (6.9)	*49 (34.0)*	70 (47.3)	11 (8.1)	*81 (28.6)*
Deserted	6 (7.9)	5 (7.9)	*11 (7.9)*	1 (1.4)	1 (1.4)	*2 (1.4)*	7 (4.7)	6 (4.4)	*13 (4.5)*
Divorced	1 (1.3)	3 (4.8)	*4 (2.9)*	1 (1.4)	2 (2.8)	*3 (2.1)*	2 (1.4)	5 (3.7)	*7 (2.4)*
Widow/ Widower	31 (40.8)	48 (76.2)	*79 (56.8)*	25 (34.7)	62 (86.1)	*87 (60.4)*	56 (37.8)	110 (81.5)	*166 (58.6)*
Total	**76 (100.0)**	**63 (100.0)**	***139 (100.0)***	**72 (100.0)**	**72 (100.0)**	***144 (100.0)***	**148 (100.0)**	**135 (100.0)**	***283 (100.0)***
Chi-square	*Value= 25.6 DF=4 Sig.=0.000*			*Value= 47.4 DF=4 Sig.=0.000*			*Value= 16.5 DF=4 Sig.=0.002*		

Table 3: Marital Status of the Destitute Elderly by Categories and Gender

4.1.3. Marital Status of the Destitute Elderly

Usually marriage opens the door between husband and wife to share physical, psychological, economical, and social matters. Marriage helps the human being to be more secure in later life. Particularly it is true for Bangladesh where offspring are still the major, if not only, source of support during old age. If both spouses are living together they are likely to be less vulnerable as they can extend help to each other. However, those who are living alone during old age are most vulnerable. Never married, deserted, divorced and widow/widower elderly are living singly. All together 71.1 percent of the destitute elderly were found to belong to these categories (Table 3). 91.8 percent of the females and 52.7 percent of male destitute elderly were found to be single. These findings indicate the most vulnerable position of the female destitute elderly in Bangladesh. If categories are considered, difference is seen between the destitute elderly living in the Old home and those living with family in this regard, with 77.0 percent of the elderly living in the Old home compared to 66.0 percent of the elderly living with family. The Chi-square value for the destitute elderly living in the Old home is 25.6 and significance is 0.000 with 4 degrees of freedom and the chi-square value for the destitute elderly living with family is 47.4 and significance of 0.000 with 4 degrees of freedom indicates that the difference between the elderly living in the Old home and the elderly living with family in terms of marital status, is statistically significant. If categories are considered it is seen that there is not much difference between the proportions of widow/widower; it is 60.4 percent for family and 56.8 percent for the Old home. However, if gender is considered it is seen that differences among the proportions of widow/widower between male and female are very high for both the Old home (male 40.8 percent and female 76.2 percent) and family (male 34.7 percent and female 86.1). Findings show that the difference is highest for the destitute elderly living with family (Table 3). In all cases the proportion of widow/widower is higher for the female destitute elderly.

As, usually, females are younger than males at the time of marriage in Bangladesh, these findings indicate that the male spouse of the destitute female elderly have already died, although it is already seen in Table 1 that the age of the female destitute elderly is lower than that of the male. Widowhood is considered as the highest level of vulnerability in Bangladesh. So the above findings indicate that women are more destitute than males.

Level of Education	Categories and Gender						Total		
	Old home			Family					
	Male	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*
Illiterate	20 (26.3)	48 (76.2)	68 (48.9)	55 (76.4)	67 (93.1)	122 (84.7)	75 (50.7)	115 (85.2)	190 (67.1)
Primary	20 (26.3)	6 (9.5)	26 (18.7)	14 (19.4)	4 (5.6)	18 (12.5)	34 (23.0)	10 (7.4)	44 (15.5)
Secondary	22 (28.9)	8 (12.7)	30 (21.6)	3 (4.2)	1 (1.4)	4 (2.8)	25 (16.9)	9 (6.7)	34 (12.0)
Higher	14 (18.4)	1 (1.6)	15 (10.8)	- -	- -	- -	14 (9.5)	1 (.7)	15 (5.3)
Total	**76 (100.0)**	**63 (100.0)**	**139 (100.0)**	**72 (100.0)**	**72 (100.0)**	**144 (100.0)**	**148 (100.0)**	**135 (100.0)**	**283 (100.0)**
Chi-square	*Value=36.0 DF=3 Sig.=0.000*			*Value=7.7 DF=2 Sig.=0.021*			*Value=39.8 DF=3 Sig.=0.000*		

Table 4: Educational Status of the Destitute Elderly by Categories and Gender

The second highest proportion (28.6 percent) of the destitute elderly was found currently married. The differences among the proportions of currently married destitute elderly living in the Old home and family by gender, were found significant. In general 47.3 percent of the male destitute elderly were found to be currently married compared to only 8.1 percent of the female destitute. If the setting is considered, more currently married destitute elderly are found with family (34.0 percent) compared to 23.0 percent in the Old home. If gender of the destitute elderly is considered in both categories, male destitute elderly are found more currently married (34.2 percent for old home and 61.1 percent for family) than female destitute elderly (9.5 percent for old home and 6.9 percent for family). If currently married is considered as an indication of less destitution, these findings indicate that male destitute elderly living with family are less destitute than the male destitute living in the Old home. Interestingly 16 or 5.6 percent of the destitute elderly were found to be never married. Among them 13 (81.3 percent) are male and only 3 (18.7 percent) are female. If the setting is considered 13 out of 16 are living in Old home and the other 3 are living with family. Among 13 living in the Old home 12 were male and only 1 was female (Table 3). It is likely in Bangladesh that never married or single persons are more destitute than married persons. So these findings indicate that most never married destitute elderly are living in the Old home, as they are the most vulnerable in terms of destitution.

4.2. Socio-economic Characteristics of the Destitute Elderly

4.2.1. Educational Status of the Destitute Elderly

Education is an important indicator of human resources development. The level of education, accessibility to family income and years of education are highly correlated to socio-economic status. Most of the destitute elderly respondents of this study were found to be illiterate and it is 67.1 percent in both Categories (Table 4) - next page.

If setting is considered, more illiterate destitute elderly are seen with family than the Old home. It is 84.7 percent for the destitute elderly with family and 48.9 percent for the destitute elderly living in the Old home, respectively. However, a higher literacy rate is found among the destitute elderly living in the Old home (51.1 percent) than the destitute elderly living with family (15.3 percent). If education is considered as means of availing better services (as we know all the services are provided by the Old home at no cost) and overcoming a vulnerable situation, it is seen that the destitute elderly living in the Old home are more advanced than the destitute elderly living with family. It indicates that level of knowledge and awareness is higher among the destitute elderly living in the Old home than the destitute elderly living with family. Furthermore, if primary education is considered as basic education it is seen that the major proportion of the destitute elderly having primary education living with family rather than Old home, is 72.7 percent and 26.8 percent respectively.

Level of Education	Categories and Gender						Total		
	Old home			Family					
	Male	*Female*	*Total*	*Male*	*Female*	*Total*	*Male*	*Female*	*Total*
Illiterate	20 (26.3)	48 (76.2)	68 (48.9)	55 (76.4)	67 (93.1)	122 (84.7)	75 (50.7)	115 (85.2)	190 (67.1)
Primary	20 (26.3)	6 (9.5)	26 (18.7)	14 (19.4)	4 (5.6)	18 (12.5)	34 (23.0)	10 (7.4)	44 (15.5)
Secondary	22 (28.9)	8 (12.7)	30 (21.6)	3 (4.2)	1 (1.4)	4 (2.8)	25 (16.9)	9 (6.7)	34 (12.0)
Higher	14 (18.4)	1 (1.6)	15 (10.8)	- -	- -	- -	14 (9.5)	1 (.7)	15 (5.3)
Total	**76 (100.0)**	**63 (100.0)**	**139 (100.0)**	**72 (100.0)**	**72 (100.0)**	**144 (100.0)**	**148 (100.0)**	**135 (100.0)**	**283 (100.0)**
Chi-square	*Value=36.0 DF=3 Sig.=0.000*			*Value=7.7 DF=2 Sig.=0.021*			*Value=39.8 DF=3 Sig.=0.000*		

Table 4: Educational Status of the Destitute Elderly by Categories and Gender

4.2.2. Occupation of the Destitute Elderly

Able-bodied persons in Bangladesh are involved in different types of occupations. They work in different fields such as agriculture, cottage industry, trades and commerce, and small trades and service sectors (GOB, 2010:xv). We collected information from the destitute elderly about their occupation. It may be mentioned here that the destitute elderly living in the Old home have no occupation at present. So, their previous occupations have been considered for presentation.

Occupation	Gender				Total	
	Male		Female			
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
Service	22	28.9	3	4.8	25	18.0
Housewife	-	-	37	58.7	37	26.6
Business	18	23.7	-	-	18	12.9
Didn't work	11	14.5	7	11.1	18.	12.9
Agriculture	13	17.1	-	-	13	9.4
Beggary	2	2.6	10	15.9	12	8.6
Day labour	6	7.9	-	-	6	4.3
Rickshaw puller	3	3.9	-	-	3	2.2
Others	1	1.3	6	9.5	7	5.0
Total	**76**	**100.0**	**63**	**100.0**	**139**	**100.0**

Table 5 : Occupational Status of the Destitute Elderly Living in Old home by Gender

It is seen that the elderly living in the Old home were engaged in different occupations before coming to this home. It is also seen that there were differences in occupation among the male and female inmates of the Old home. The highest proportion (28.9 percent) of males was service holder, followed by 23.7 percent businessman, 17.1 percent agriculture and so on. 14.5 percent mentioned that they didn't have any work. Compared to the males, the highest proportion (58.7 percent) of the female elderly living in the Old home were

housewife, followed by 15.9 percent beggary, 4.8 percent service and so on. 11.1 percent mentioned that they didn't have any work. If beggary is considered as the acute level of destitution or vulnerability it is seen that female elderly were more destitute than male elderly who are now living in the Old home. It may be mentioned that about 12.2 percent elderly (both male and female) did not work due to their physical incapability. They were dependent on others in society. A significant proportion (15.9 percent) of the female elderly was involved in beggary. So, it can be said that the female elderly living in the Old home are more vulnerable than the male elderly.

Of the destitute elderly living with family (144) do have a present occupation. Their occupational statuses have been presented in Table 6. It is seen that the highest proportion of the destitute elderly living with family (42.4 percent) is fully dependent on the other's income at present. It does not mean however, that they were never engaged in work, in their young age. It appears that they were mostly involved in agriculture and day labor. The rest of the destitute elderly living with family were engaged in service (2.8 percent), agriculture (9.7 percent), day labour (3.5 percent), business (3.5 percent), rickshaw pulling (0.7 percent), beggary (6.3 percent), housewife (27.1 percent) and others (4.2 percent). The detailed information available about the present status of occupation of the elderly living with family is seen in Table 6. So it is to be said that the service holder is higher in the Old home than with family and dependent is higher with family compared to the old home. It indicates that the educated people i.e. service holder, prefer independency (as the number of elderly having better educational background and in service) than the destitute elderly living with family.

Occupation	Gender				Total	
	Male		Female			
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
Don't Work	37	51.4	24	33.3	61	42.4
Housewife	-	-	39	54.2	39	27.1
Agriculture	14	19.4	-	-	14	9.7
Service	4	5.6	-	-	4	2.8
Day labour	5	6.9	-	-	5	3.5
Business	5	6.9	-	-	5	3.5
Rickshaw Puller	1	1.4	-	-	1	0.7
Beggary	4	5.6	5	6.9	9	6.3
Others	2	2.8	4	5.6	6	4.2
Total	**72**	**100.0**	**72**	**100.0**	**144**	**100.0**

Table 6: Occupational Status of the Destitute Elderly Living with family by Gender

4.2.3. Income of the Destitute Elderly

Income is an important factor in determining the socio-economic status of the households in Bangladesh, but it is very difficult to collect the actual income of agriculture-based households because many of them think that it is their private matter and did not wish to disclose their income. Moreover they do not maintain a ledger or cashbook regarding their income and expenditure (Rahman, 2002:45). Among 283 destitute elderly respondents of this study, 139 living in the Old home had no income, as they are not involved in income earning activities at present. So their income before coming to this Old home is considered. It is seen that 13.2 percent of the male elderly and 63.5 percent of female elderly living in the Old home had no income. Generally, women of Bangladesh are involved in household activities. That is why a higher proportion of female elderly having no income is not unlikely. The major proportion of the male elderly (85.5 percent) had income before coming to the Old home compared to the female elderly (30.2 percent). If it is considered that more income means more empowerment and less vulnerability, it can be said that female elderly were more destitute and underpowered than male elderly in this regard. In terms of income status, a difference is seen between male elderly and female elderly. The difference is statistically significant as the chi-square value is 44.16 with degree of freedom 1 and significance is 0.000.

The amount of previous monthly income of the destitute elderly living in the Old home is presented in Table 4.10. Data reveals that average income of all the destitute elderly living in the Old home was BDT 2,345/= only. The highest proportion (35.7 percent) of the destitute elderly living in the Old home had monthly income between BDT 1000-2000 followed by 28.1 percent BDT 1-1000, 20.2 percent BDT 3000 and more, and 19.0 percent BDT 2000-3000 (Table 4.10). If gender is considered, it is seen that the average monthly income of the male elderly is much higher than that of the female elderly, BDT 2,676/- and BDT 1,210/- respectively. Highest proportion (44.6 percent) of the male elderly had a monthly income between BDT 1000-2000. However the highest proportion (89.5 percent) of the female elderly had a monthly income between BDT 1-1000. In the same way 49.2 percent of the male elderly had a monthly

Income (BDT)	Gender				Total	
	Male		Female			
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	65	85.5	19	30.2	84	60.4
No	11	14.5	44	69.8	55	39.6
Total	**76**	**100.0**	**63**	**100.0**	**139**	**100.0**
Chi-square	*Value=44.16*		*DF=1*		*Significant=0 .000*	

Table 7: Whether the Destitute Elderly Living in Old home Had Income

Amount of Income (BDT)	Gender				Total	
	Male		Female			
	Number	Percentage	Number	Percentage	Number	Percentage
1-1000	4	6.2	17	89.5	21	25.0
1000-2000	29	44.6	1	5.3	30	35.7
2000-3000	16	24.6	-	-	16	19.0
3000 and More	16	24.6	1	5.3	17	20.2
Total	**65**	**100.0**	**19**	**100.0**	**84**	**100.0**
Average (BDT)	*2,676/-*		*1,210/-*		*2,345/-*	

Table 8: Monthly Income of the Destitute Elderly Living in the Old home

Income (BDT)	Gender				Total	
	Male		Female			
	Number	Percentage	Number	Percentage	Number	Percentage
No	37	51.4	63	87.5	100	69.4
Yes	35	48.6	9	12.5	44	30.6
Total	**72**	**100.0**	**72**	**100.0**	**144**	**100.0**
Chi-square	*Value=22.12*		*DF=1*		*Significant=0.00*	

Table 9: Whether the Destitute Elderly Living with family Have Income

income of BDT 2,000 and above, compared to only one female elderly in this category. It may be mentioned again that a large proportion (69.8 percent) of the female elderly didn't have any income compared to only 14.5 percent of male elderly. These findings clearly indicate the higher vulnerability of the female elderly than male elderly, living in the Old home.

On the other hand, 69.4 percent of the destitute elderly living with family have no regular income at present. Only 30.6 percent of the destitute elderly have some monthly income (Table 9). The highest proportion (36.4 percent) of elderly living with family who have income belong to BDT 1-1000 category, followed by 31.8 percent BDT 1000-2000, 22.7 percent BDT 2000-3000, and 9.1 percent BDT 3000 and more category. The average monthly income of the destitute elderly living with family is BDT 2,045/- only.

If gender is considered of the destitute elderly living with family, like destitute elderly living in the Old home, it is seen that almost all (87.5 percent) the female elderly do not have any income at present compared to 51.4 percent male destitute elderly living with family. The average monthly income of the female elderly is much lower than male elderly, BDT 1,333/ and BDT 2,228/- respectively. Income is the most important criteria of destitution. Hence, findings clearly show that female elderly are more destitute than male elderly living with family.

Amount of Income (BDT)	Gender				Total	
	Male		Female			
	Number	Percentage	Number	Percentage	Number	Percentage
1-1000	9	25.7	7	77.8	16	36.4
1000-2000	13	37.1	1	11.1	14	31.8
2000-3000	9	25.7	1	11.1	10	22.7
3000 and More	4	11.4	-	-	4	9.1
Total	**35**	**100.0**	**9**	**100.0**	**44**	**100.0**
Average (BDT)	*2,228/-*		*1,333/-*		*2,045/-*	

Table 10: Present Monthly Income of the Destitute Elderly Living with family

Family Member	Categories				Total	
	Old home		Family			
	Number	Percentage	Number	Percentage	Number	Percentage
1-2	65	46.8	42	29.2	107	37.8
3-4	30	21.6	27	18.8	57	20.1
5-6	36	25.9	59	40.9	95	33.6
7-8	8	5.8	16	11.1	24	8.5
Total	**139**	**100.0**	**144**	**100.0**	**283**	**100.0**
Average	*3.1*		*4.2*		*3.6*	
STD	*2.04*		*2.00*		*2.09*	

Table 11: Family Size of the Destitute Elderly by Categories

Findings based on income data reveal that overall income level of the destitute elderly living in both categories, i.e., old home and with family, is very low. This is lower for the destitute elderly living with family, indicating that they are more vulnerable. Female elderly of both categories were found to be in a miserable condition in terms of income. Almost all of them do not have any income. These findings again indicate that female impoverished in the society deserve more attention.

4.3. Family and Household Characteristics of the Destitute Elderly

4.3.1. Family Size of the Destitute Elderly

The family is the most important primary group in society. It is the first and the most immediate social environment where a child is exposed. All the activities of the family are performed around the well-being of the family member. Similarly lack of proper family role and desertion by family member may create destitution and vulnerability in life for everybody. So it was necessary to know their family structure. I inquired of the destitute elderly about their family members. The destitute elderly living in the Old home at present, discussed their previous family status where they lived prior to coming to the Old home. It is evident from Table 4.13 that the destitute elderly living with family had a larger family than the destitute elderly living in the Old home. The average number of family members is 3.1 and 4.2 for the Old home and with family respectively. It is not unlikely, because earlier it was seen that the destitute elderly living in the Old home are more educated, service holders, and had more income. All these indicate they are more conscious about family size. Moreover, it is also true that the destitute elderly living with family came to the Old home because they didn't have family support to look after them. Again, the highest proportion (68.4 percent) of family of the destitute elderly living in the Old home consisted of four members (they have only two children) compared to the destitute elderly living with family (48.0 percent). The rest of the destitute elderly living in the Old home (31.7 percent) had 5 to 8 family members. On the other hand, the highest proportion of family (52.0 percent) of the destitute elderly living with family consisted of 5-8 members. Of the 29.2 percent and 18.8 percent families of the destitute elderly living with family, the familyconsisted of 1-2 members and 3-4 members. It may be assumed that the study area is agricultural based, so they prefer more family members. So, it can be said that the destitute elderly living in the Old home preferred small families than the destitute elderly living with family. They (the elderly of the family) think that the joint and big sized family is more helpful for agricultural based society like the study area. That is why they prefer a bigger family. If highest family member range of 7-8 is considered, it is seen that more families are in this range of the destitute elderly living with family compared to the destitute elderly living

Whether Living with Family	Gender				Total	
	Male		Female			
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
No	28	36.8	27	42.9	55	39.6
Yes	48	63.2	36	57.1	84	60.4
Total	**76**	**100.0**	**63**	**100.0**	**139**	**100.0**

Table 12: Whether the Elderly had been living with family before Coming to the Old home

Family Living	Gender				Total	
	Male		Female			
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
No	3	4.2	8	11.1	11	7.6
Yes	69	95.8	64	88.9	133	92.4
Total	**72**	**100.0**	**72**	**100.0**	**144**	**100.0**

Table 13: Whether the Old Age Allowance Recipient Destitute Elderly Live with Family by Gender

Homestead Ownership	Gender				Total	
	Male		Female			
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
Had Homestead	10	13.2	02	3.2	12	8.6
Had no Homestead	66	86.8	61	96.8	127	91.4
Total	**76**	**100.0**	**63**	**100.0**	**139**	**100.0**

Table 14: Homestead Ownership of the Elderly Living in The Old home by Gender

Living Place	Gender				Total	
	Male		Female			
	No.	*Percentage*	*No.*	*Percentage*	*No.*	*Percentage*
Lived in /Share in rented house	10	15.2	18	29.5	28	22.0
Lived in public land	30	45.5	26	42.6	56	44.1
Relative's house	15	22.7	8	13.1	23	18.1
Others	11	16.7	9	14.8	20	15.7
Total	**66**	**100.0**	**61**	**100.0**	**127**	**100.0**

Table 15: Living Place of the Elderly before Coming to The Old home

in the Old home. It is 11.1 percent for the destitute elderly living with family and 5.8 percent for the destitute elderly living in the Old home.

Generally, all human beings, particularly the elderly, want to live in a family environment. But in many cases of elderly it has found that the respondents prefer to live in a floating condition rather than with family. On the other hand, the elderly receiving the old age allowance are supposed to live with family according to the criteria of receiving the old age allowance. Permanent address is also another criterion of receiving the old age allowance (Boisko Bhata). 11 out of 144 old age allowance recipients respondents of this study, do not fulfill this criterion. The rest, 133 respondents (92.4 percent) fulfill this criterion (Table 4.15).

If gender is considered of the destitute elderly who are not living in family, 8 out of 11 were female. So the female elderly are rootless more than the male elderly, although they were supposed to live with family. If it is assumed that a 'without family' situation increases destitution and vulnerability, findings indicate that the female elderly are more destitute than male elderly in terms of family living.

4.3.3. Homestead Ownership of the Destitute Elderly

Ownership of a living place is an important factor for everybody. It plays a vital role in getting various services from the neighbour and kinship relations. The temporary inhabitant can become more easily destitute and vulnerable than permanent inhabitant. That is why ownership of land has been considered as a symbol of status and prestige in our traditional social system. I wanted to know about the ownership of land where the destitute elderly lived. The elderly living in the Old home have mentioned their previous homestead ownership. About 91.4 percent of the elderly living in the Old home had no self-homestead ownership and only 8.6 percent of elderly had self-homestead ownership before coming to the Old home. The detailed information has been presented in Table 14.

The available information reveals (Table-4.17) that about 44.1 percent of destitute elderly living in the Old home at present, lived on public land before coming to the Old home, 22 percent in a rented house, 18.1 percent a relative's house and 15.7 percent in other places. Others include the working place, bus and railway station, neighbor's house etc. The data indicates that the elderly living in the Old home were rootless before coming to the Old home. Almost all (61 out of 63 or 96.8 percent) of destitute female elderly living in the Old home were rootless compared to 86.8 percent destitute male elderly.

In the case of elderly living with family and receiving old age allowance, it is evident from Table 16 that more than three-quarters (76.4 percent) have a homesteaded. The emaining 23.6 percent had no homestead. These landless destitute elderly used to live on public land (47.1 percent), rented house (8.8 percent), relative's house (2.9 percent) and other places (14.7 percent). From the data presented in Table 17, it can be said that the elderly living in the Old home were more vulnerable before coming home.

Homestead Ownership	Gender				Total	
	Male		Female			
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
Having Homestead	59	81.9	51	70.8	110	76.4
Having no Homestead	13	18.1	21	29.2	34	23.6
Total	**72**	**100.0**	**72**	**100.0**	**144**	**100.0**

Table 16: Homestead Ownership of the Destitute Elderly Living with family

Living Place	Gender				Total	
	Male		Female			
	No.	*Percentage*	*No.*	*Percentage*	*No.*	*Percentage*
Lived in/ Share in rented house	1	7.7	2	9.5	3	8.8
Lived in public land	6	46.2	10	47.6	16	47.1
Relative's house	5	38.5	5	23.8	10	2.9
Others	1	7.7	4	19.0	5	14.7
Total	**13**	**100.0**	**21**	**100.0**	**34**	**100.0**

Table 17: Living Place of the Destitute Elderly Living with family

4.3.4. Offspring of the Destitute Elderly

Everybody wants to live with children. In Bangladesh, children are considered as a source of income, symbol of status and prestige in society. Most of the people consider their children particularly, a son, as a source of income and social security during old age. It is evident from Table 18 that more childless elderly (28.1 percent) lived in the Old home compared to the elderly living with family (10.4 percent). If a childless situation is considered as destitution, the elderly living in the Old home are more destitute compared to the elderly living with family. One of such elderly replied "Baba Jadi Amar Pulapan Thaktam Baila, Ami Ehane Aitam Na" (If I have any child, I would not have come to this place). But it does not mean that only a childless situation made them more destitute. Data of the present study supports that in spite of having offspring a mentionable proportion (71.9 percent) of the elderly lived in the Old home; that means they were compelled to come to the Old home through cutting off of the relationship with their children. It indicates vulnerability of the elderly living in the Old home.

Status of Offspring	Categories				Total	
	Old home		Family			
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
No Child	39	28.1	15	10.4	54	19.1
Have Child	100	71.9	129	89.6	229	81.9
Total	**139**	**100.0**	**144**	**100.0**	**283***	**100.0**
1-2	41	41.0	24	18.6	65	28.4
3-4	34	34.0	65	50.4	99	43.2
5-6	16	16.0	35	27.1	51	22.3
7 and More	9	9.0	5	3.9	14	6.1
Total	**100**	**100.0**	**129**	**100.0**	**229**	**100.0**
Mean	*1.93*		*2.16*		*2.06*	
STD	*.967*		*.768*		*.866*	

Table 18: Description of Offspring of the Destitute Elderly by Categories

Economic Solvency	Categories				Total	
	Old home		Family			
	Number	*Percentage*	*Number*	*Percentage*	*Number*	*Percentage*
Surplus	17	12.2	1	0.7	18	6.4
Easy Going	66	47.5	54	37.5	120	42.4
Deficit	56	40.3	89	61.8	145	51.2
Total	**139**	**100.0**	**144**	**100.0**	**283**	**100.0**
Chi-Square	*Value=22.85*		*DF=2*		*Significant=0.000*	

Table 19: Economic Condition of the Family of the Destitute Elderly

In case of having children, it is seen that 41 percent elderly living in the Old home have 1-2 living children at present, 34 percent have 3-4 children, 16 percent have 5-6 children, and 9 percent have 7 or more children at present. On the other hand, half of the destitute elderly (50.4 percent) living with family have 3-4 living children at present, 27.1 percent have 5-6 children, 18.6 percent have 1-2 living children and 3.9 percent have 7 or more living children at present (Table 18). The average number of living children of the destitute elderly living in the Old home and the destitute elderly living with family is 1.93 and 2.16 respectively. More destitution and vulnerability is considered in terms of a childless situation, therefore the elderly living in the Old home are more destitute and vulnerable compared to the elderly living with family.

4.3.5. Economic Condition of the Destitute Elderly

It is a general belief in almost every society that economic condition plays a vital role in determining social status. It is considered as an important element for social stratification all over the world. As usual the information I received from the economic condition of the elderly living in the Old home, reflected the condition before coming to the home. It is already seen (Table 7 & 9) that about seventy percent (69.4 percent) of the destitute elderly living with family have no income at present and 39.6 percent destitute elderly living in the Old home had no income prior to coming to the home. So, to assess the economic destitution and vulnerability of the destitute elderly I inquired about their economic solvency.

It is clearly shown that maximum elderly (93.6 percent) were economically insolvent/distressed. Only an insignificant proportion of the elderly (6.4 percent) were economically solvent. If setting is considered there are more economically insolvent elderly living with family (99.3 percent) compared to the elderly living in the Old home (67.8 percent). Difference is clearly seen between the economic solvency of the destitute elderly living in the Old home and the elderly living with family, as chi-square value is 22.85, degree of freedom 2 and significance 0.000. That is, the difference is statistically significant. If economic insolvency is considered as an indicator of destitution, the elderly living with family are more destitute than the elderly living in the Old home.

4.3.6. Measures Adopted to Manage the Economic Deficiency

Most of the people of Bangladesh are not economically solvent. It is seen from Table 4.21 that the maximum (51.2 percent) of destitute elderly respondents of this study faced economic deficiency in their life. I inquired of the destitute elderly about the ways theyadopted to manage economic deficiency and cope with the economic distress.

Most of the elderly (76.8 percent) living in the Old home mentioned that they remained unfed. The next frequently mentioned measure was borrowing (without payment at present) from the shop. Other remarkable measures adopted by the elderly were public assistance (46.4 percent) through Union Parishad (UP), Non-Government Organization's assistance (7.14 percent), relative's help (26.8 percent), a loan from an NGO (5.4 percent) and other measures (33.9 percent). On the other hand, the highest proportion (64.0 percent) of the destitute elderly living with family had taken relative's help as a measure of fulfilling economic inadequacy. The next mentioned measure is borrowing from the shop (56.2 percent) to manage their income inadequacy. To keep unfed (31.5 percent), public assistance (19.1 percent), NGO assistance (3.4 percent), loan from NGO (22.5 percent) and other measures (30.3 percent) are adopted by the elderly living in a family setting as a means of managing their economic deficiency (Table 20).

Measures Adopted	Categories				Total	
	Old home*		Family			
	No.	*Percentage*	*No.*	*Percentage*	*No.*	*Percentage*
Remained unfed	43	76.8	28	31.5	71	49.0
Public Assistance	26	46.4	17	19.1	43	29.7
NGO Assistance	4	7.1	3	3.4	7	4.8
Relative's Help	15	26.8	57	64.0	72	49.7
Loan from NGO	3	5.4	20	22.5	23	15.9
Borrow from Shop	38	67.9	50	56.2	83	57.2
Others	19	33.9	27	30.3	46	31.7
Total	**148 (N=56)**		**202 (N=89)**		**345**(N=145)**	

Table 20: Measures Adopted by the Destitute Elderly to Manage Deficit, by Categories

On the basis of these data, it may be concluded that the measures adopted by the elderly differ by Categories. The data reveals that the elderly living in the Old home mostly fulfilled their deficiency by remaining unfed, which indicates their negative social network, and vulnerability and the elderly living with family have fulfilled their deficiency by taking a relative's help, which bears the positive sign of traditional community support.

Conclusions

On the basis of the above review, it can be said that the overall socio-economic condition of the destitute elderly is not so good in Bangladesh. The present study indicates that the elderly wherever they reside (either in the Old home or with family) are incapable, aged, illiterate, have larger family members, the highest number of widows/widowers and are low-income people. Due to such a socio-economic background they are really destitute, economically distressed and socially vulnerable. So to uplift the socio-economic status of the destitute elderly of Bangladesh the following suggestions are being recommended;

i. Government should take necessary steps to formulate an elderly policy so that a complete and effective welfare program for the elderly may be undertaken permanently.

ii. Government should give serious consideration to introducing a national welfare pension scheme for the elderly to ensure their income security during old age.

iii. Community based support services should be developed in order to encourage the families to look after their elderly members at home.

iv. The government of Bangladesh should take necessary steps to formulate a law of encouraging relatives to take responsibility for their destitute, poor relatives.

v. The necessary policy should be taken to uplift the socio-economic condition of this section of people of Bangladesh.

References

(see page 42)

The Role of the Family Physician in Palliative Care

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ABSTRACT

Palliative care is the active total care of patients whose disease is not responsive to curative treatment. Control of pain, of other symptoms, and of psychological, social and spiritual problems is paramount. The goal of palliative care is achievement in family practice, of the best possible quality of life for patients and their families. With the increasing burden of cancer patients, family physicians in developed as well as developing countries are expected to provide the best possible care to patients with cancer pain. A good understanding of the available pharmacological and non-pharmacological options makes the task of caring for such patients very rewarding and satisfying. Good end-of-life care requires eliciting a shared understanding of the patients' values and beliefs. Terminally ill patients may prefer to be at home during their last days, spending the rest of time with their beloved ones and extended family rather than staying in hospitals.

The existing heath care facilities are more attuned to caring for acute health problems and they play only a limited role in the care of the chronically ill in society. Those who need continued supportive care spend their lives not in the hospital, but in the community among their family and neighbours. Terminally ill patients can experience neurologic, respiratory, infection-related, digestive, and musculoskeletal symptoms all at the same time. Physicians must adopt a systemic vision, a vision that takes into account the effects that diseases are having not just on patients but also on patients' caregivers and loved ones. Family physicians are the medical professionals best equipped to care for most terminally ill patients, as their training imparts the skills and knowledge needed to treat common problems associated with every system of the human body.

Key words: Palliative care, Family practice, End of life care, symptom assessment, continuity of care

Introduction

Palliative care describes comprehensive (physical, psychological, and spiritual), interdisciplinary services that focus on alleviating suffering and promoting quality of life for patients (and their families) facing a life-threatening or terminal illness.(1) These approaches provide comfort to dying patients without necessarily modifying the underlying medical condition. (2) This healthcare modality provides relief of suffering and improvement in the quality of life in various illnesses. Palliative treatment may also be used to alleviate the side effects of curative treatment, such as relieving the nausea associated with chemotherapy in cancer patients. The care aims to maintain dignity of the patient even in death and to sustain and rehabilitate the individual's family.(3) Family practice can involve the relief of symptoms such as pain, shortness of breath, fatigue, constipation, nausea, loss of appetite and difficulty sleeping, to help patients gain the strength to carry on with daily life, improve their ability to tolerate medical treatments, and help them better understand their choices of care. Overall, palliative care in family practice offers the patients the best possible quality of life during their illness.(4)

Role of Family Physician in symptom management:
Primary care professionals have the potential and ability to provide end of life care for most patients, given adequate training, resources, and, when needed, specialist advice. They can readily identify patients from cancer and chronic disease registers who might benefit from an early palliative care approach. We could deliver, simultaneously, active treatment and patient centered supportive care, through a team with whom many patients have a valued long term relationship.(5) Palliative care services need to be extended to patients with non-malignant conditions who have comparable concerns to, and in some cases even greater unmet needs, than cancer patients. (6) General practitioners and community nurses can lead the way in providing a palliative care approach for patients with terminal organ failure illness. The first step in such an approach is for the goals of care to be discussed and agreed. Management plans are adjusted accordingly.(7) Effective control of symptoms and maintaining quality of life are prioritized. Establishing clear goals can facilitate decision-making regarding treatment.

The main goals of palliative care are to prevent and relieve suffering and to enable the best quality of life possible for patients and their families, no matter what the stage of disease or the need for other treatments.(8) Physical symptoms and side effects, psychological and psychiatric issues, and spiritual and existential dimensions should be assessed and responded to based on the best available evidence. Continuity of care and communication among the varied settings involved should be promoted and facilitated to help achieve these goals and to prevent feelings of abandonment.(9) Once goals are established, they can be used to construct advance directives about the types of care that patients want. Gradual rise in the prevalence of advance directives over the past decade will improve their effectiveness, as physicians and patients become more familiar with them and physicians become more comfortable using them for assistance in guiding the care of cognitively impaired adults.(10)

A fundamental goal of palliative care in family practice is the relief of pain and other symptoms. Successful approaches to the assessment and management of pain and some physical and psychological symptoms have been established in controlled trials.(11) Despite these advances, under-treatment of symptoms persists in the majority of patients and settings. Patient assessment in end-of-life care should include the following: disease history, physical symptoms, psychological symptoms, decision-making capacity, information sharing, social circumstances, spiritual needs, practical needs, and anticipatory planning for death, have pain that contributes materially to functional impairment and decreased quality of life. Pain becomes an especially challenging issue among patients with cognitive impairment.(12) Pain is often not identified and tends to be undertreated in long-term-care facilities and is also common among patients who require end-of-life care. Relief of suffering begins with routine and standardized symptom assessment with use of validated instruments. Effectiveness of Family Physicians' use of specific communication skills in enhancing disclosure of the issues of concern to a patient, decreasing anxiety, assessing depression, and improving a patient's well-being and the level of the patient's and the family's satisfaction is a goal of the treatment.(14) Those communication skills include making eye contact with patients, asking open-ended questions, responding to a patient's affect, and demonstrating empathy.(15) The confluence of enhanced attention to primary care and palliative care education presents educators with an opportunity to improve both (as well as patient care) through integrated teaching. Improvements in palliative care education will have benefits for dying patients and their families, but will also extend to the care of many other primary care patients, including geriatric patients and those with chronic illnesses, who make up a large proportion of the adult primary care population. In addition, caring for the dying, and teaching others to carry out this task, can be an important vehicle for personal and professional growth and development for both students and their teachers.(16)

Pain Relief:
Pain is often the most distressing symptom in patients with cancer and if not managed appropriately, may destroy the patient's existence with demoralizing effects on relatives.(17) Each complaint of pain is valid and unique with respect to its quality, intensity, duration, cause, radiation, relieving and exacerbating factors. Clinicians should document and be aware of outcomes of pain therapy. It is helpful to think of pain-related outcomes as primarily measured in two ways: decreased pain intensity and improvement in psychosocial functioning.(18) Using rating scales of pain intensity at its worst and on average and using pain interference scales can help clinicians monitor outcomes. Inadequate pain assessment prevents optimal treatment in palliative care.(19) The content of pain assessment tools might limit their usefulness for proper pain assessment.(20) The medical community needs to strengthen clinical competency and specialty skills in order to ensure quality care at the end of life. To that end, representatives promised to work within their individual societies toward developing clinical methods, tools, or guidelines to meet those needs.

Family Physician in Hospice/Community Resources:
Utility of health services is still inadequate in most parts of developing countries. Lack of resources, illiteracy, poverty, lack of awareness about the types of available healthcare facilities among people developing palliative-care services is a major challenge in this part of the world.(21) Home-based palliative care significantly increases patient satisfaction while reducing use of medical services and costs of medical care at the end of life. This cost saving value of home-based palliative care should result in more end of life care taking place at the patient's home.(22)

Hospice care always provides palliative care. However, it is focused on terminally ill patients, people who no longer seek treatments to cure them and who are expected to live for about six months or less. The Family Physician plays a vital role there too as physicians have a way to align themselves with the patient, use their medical expertise, and build a rich therapeutic relationship over time. Palliation done by family physicians in the community and hospices includes maintain regular contact, be available, have knowledge of community resources and covered services.

The primary care physician enhances quality of life, and may also positively influence the course of illness in conjunction with other therapies that are intended to prolong life, such as chemotherapy or radiation therapy, and includes those investigations needed to better understand and manage distressing clinical complications. Family practice also has opportunity for research-based evidence on end of life care provision locally, nationally and internationally through primary research studies and reviews that can disseminate results in order to make a practical and academic impact to establish appropriate programs of education and training, as well as consultancy services. They can work in partnership with key organizations and individuals as a 'community effort' for the global improvement of end of life care. Clinical studies, particularly on the management of pain and other symptoms, understanding the needs of family and planning interventions to support them, are the prime goals. Family physicians are in a good position to provide public education and awareness of end of life issues as well as developing research plans across the lifespan in chronic illness and end of life care, from childhood to old age. (23) Family practitioners can be a link to provide access to palliative care and hospice care and respect the physician's professional responsibility to discontinue some treatments when appropriate, with consideration for both patient and family preferences.(24)

Such a program should be part of an overall strategy to give people greater choice in their place of care and death, and to provide training for health and social care staff to help care for people at the end of their lives. It aims to reduce the number of emergency admissions to acute care for those who wish to die at home, and reduce the number of patients transferred from care homes to acute care in the last week of their life.(25,26)

Future Role of Family Physicians:
Family Physicians have a vital and active role to play in providing care, support and solace in the final stages of the illness and in guiding the patient and relatives through a complicated and frightening process. The autonomy of patients must be protected regardless of their level of cognitive and/or physical incapacity. Their inability to make certain care decisions should be assessed at the outset, however. For patients who are no longer able to make decisions, their previously expressed wishes regarding end-of-life care should be respected. For patients who are vulnerable (e.g. frail, elderly) but who are still able to make decisions for themselves, must be involved in decisions about their own care.

Recruitment of dedicated and committed volunteers is not an easy task, but they are there in every community. We should mobilize and provide basic training and give them support. Maintaining a continuing education program is another task. The volunteers value the friendship and kinship they experience through their association with palliative care.

Our health educational system needs to be updated regularly; the information about palliative care to be made more generally available and the popular sources of information like newspapers and television should be used to disseminate information on palliative care on a large scale. This will also improve the utility of palliative care services, provided by us, among the people.(6,21)

Care at the end of life focuses on making patients comfortable. They still receive medicines and treatments to control pain and other symptoms. Some patients choose to die at home. Others enter a hospital or a hospice; either way, services are available to help patients and their families deal with the issues surrounding death. Suffering is best relieved by using a team to approach to the many elements involved in end-of-life care.

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