

# Indian Journal of GERONTOLOGY

*a quarterly journal devoted to research on ageing*

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## A Comparison Between the Effects of Specific Balance Exercise and General Balance Exercise on Balance Performance in Institutionalized Frail Elderly

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### ABSTRACT

*The purpose of this study was to investigate whether a specific balance training programme specifically designed will be superior to the general balance exercise programme in frail elderly population. A pre-post experimental design was used in this study. A Total of 50 frail elderly adults above 65 years of age participated in the study. These subjects were randomly allocated to one of the two groups: group 1 (n=25) received the general balance exercise programme and group 2 received the specific balance training programme. Baseline measurement was evaluated for both the groups on Berg Balance Scale and Timed Up and Go Test and subjects were measured for balance performance on the same scale after two weeks. On comparison between group 1 and group 2 there was no significant difference on pre-intervention Timed Up and Go Test and Berg Balance Scale and there was no significant difference for Timed up and Go Test between group 1 and group 2, whereas BBS showed a significant difference between the groups after the intervention. Thus study concludes that specific balance*

*training program improves functional balance and same is not superior to general balance training in terms of improving mobility in institutionalized frail elderly.*

**Key Words:** Frail elderly, functional balance, mobility, balance training.

Falls are among the most common and serious problem faced by elderly persons. Fall is associated with considerable mortality, morbidity, reduced functioning, and pre-mature nursing home admissions. Incidence rates of falls in elderly persons living in nursing homes and hospitals are almost three times the rates for community dwelling person above 65 years of age (Tinetti, 2003). It has been estimated that between 10 per cent to 25 per cent of falls are associated with poor balance and gait abnormality (Shumawy-Cook *et al.*, 1997). Elderly adults show a decline in ability to maintain balance when faced with the perturbations imposed by functional requirements such as dividing attentions between tasks as is needed to keep balance when walking in a crowd or on a busy road (Nitz and Choy, 2004). Older adults with balance impairments are frequently referred for physical therapy to improve balance control and reduce the risk of falling (Schuurmans *et al.*, 2004). The frail elderly are individuals, over 65 years of age, with reduced muscular strength, dependent on others for activities of daily living, poor balance and often in institutional care (Steinberg *et al.*, 2000). Frail elderly people are at much higher risks for falls, infections, disabilities, hospitalizations, institutionalizations, and death compared with their age-matched non-frail counterparts. Prevalence estimates of frailty range from 40 per cent to 59 per cent. (Daniel *et al.*, 2008).

A high risk population should be target for falls prevention programme and it is time for health services to ensure that they are not only identifying risk factors but efficiently modifying them. Frailty relates more strongly to a decline in self management abilities than does chronological age. Therefore, using frailty to select older person at risk is important compared with selecting person for intervention based only on their chronological age because it is likely to yield a more accurate selection. An exercise prescription for frail elders should be based on a pragmatic strategy that makes therapeutic exercises both sustainable and safe (Schuurmans *et al.*, 2004). Baum *et al.*, (2003) concluded that frail elderly in a long term care facility were able to participate and benefit from strength and flexibility program

and would result in improved function and balance. Mulrow *et al.*, (1994) found that exercises including strength training, active range of motion exercises, endurance activities, transfers to various surfaces and heights, and gait training improved balance in very frail nursing home residents. Workstation or circuit training is designed to focus on a specific task that addresses aspects required for balance including functional strength, flexibility, balance strategy practice, sensory integration, added attention demands during function and multitask practice. Exercise in old age has been shown to increase muscle strength and to improve balance and thus provide the rationale for the use of exercise intervention in an attempt to reduce falls (Nitz and Choy, 2004).

Often subjects suffering from multiple health and mobility problems are excluded from exercise studies, although these may be the subjects that would mostly benefit even from small improvements in the balance control. Therefore, training methods for frail older adults that can be easily adjusted to their health limitations should be developed (Sihvonen *et al.*, 2004). However, even after many different types of balance exercise program were studied, it was impossible to determine which type of exercise program was most effective for frail elderly. Keeping this in view, this study was designed to identify appropriate balance training program for institutionalized frail elderly. Two commonly used balance scales to assess balance performance in elderly are Berg balance Scale (BBS) and Timed Up and Go Test (TUG). BBS is an objective measure of static and dynamic balance abilities. The scale consists of 14 functional tasks commonly performed in everyday life. Scores use a five point ordinal scale, with scores ranging from 0 to 4. A maximum score of 56 points is possible. It takes approximately 15 minutes to complete and requires a step, two chairs, a stopwatch, a 40 cm ruler and a minimal space (Berg *et al.*, 1989). TUG is a test of balance that is commonly used to examine functional mobility in community-dwelling elderly, frail older adults. The test requires a subject to stand up, walk 3 m (10ft), turn, walk back, and sit down. Time taken to complete the test is strongly correlated to level of functional mobility (Podsiadlo and Richardson, 1991). The hypothesis for this study was to evaluate if specific balance strategy training programme is better than a general balance exercise programme for improving balance in frail elderly population.

## Methods

A sample of 50 frail elderly subjects volunteered for the study. These subjects were randomly allocated into the two groups which received different balance training interventions. A pre-post experimental design was used in this study. The subjects were selected from different old age homes in New Delhi. Subjects who fulfilled the inclusion criteria like who have scored 4 or more on Groningen frailty indicator (Schuurmans *et al.*, 2004): age 65 years or above, able to walk independently with or without assistive devices, mini-mental status examination (MMSE) scores 21 or above, adequate vision and hearing; successful use of corrective lenses and/or hearing aid if used and were ready to attend the exercise programme regularly were selected. Subjects with following problems were excluded from the study, like any recent episodes of dizziness, any severe or unstable neurological, orthopedic, surgical, cardiovascular or medical condition that may affect subject's ability to participate in the study, chronic users of alcohol, sedatives and anti-epileptics, medications known to adversely affect balance. Elderly having moderate or severe depression. (score of 9 or above according to short form of Geriatric Depression Scale (Sheikh *et al.*, 1986). Foam surface (3 inches), steps, balls of different sizes (medium and smaller size), mirror, markers, wooden blocks of different heights (6–12 inches) and chairs of different heights with and without arm rests (46–40 cm) and shelves of various heights. Following method was used in the study. Subjects were introduced about the procedure and purpose of the study followed by signing a consent form. Demographic data of the subjects was collected followed by filling of the short form of Geriatric Depression Scale and Groningen Frailty Indicator Scale. The subjects in both groups were assessed on the two balance scale such as The TUG and the BBS before and after the training. Group 1 (n=25) received general balance exercise training which consisted of active stretching and strengthening of the upper and lower limb muscles, marching on the spot, forward, backward and to the sides. This programme initially started with a low level of intensity (low frequency and repetitions) of individual exercises and was progressive over 2 weeks. The resistance applied, rest period, etc., was adjusted individually so that participants could exercise at a subjectively moderate intensity and group 2 (n=25) received specific balance strategy training programme in which a workstation was designed to focus on a specific test that addresses various aspects for balance



including functional strength, flexibility, balance strategy practice, sensory integration, and added attention demands during function and multi-task practice. Various simple tasks were selected such as sit to stand. This task was practiced using different heights of chairs, with/without upper limb assistance, balancing a cup with/without water on a saucer or while adding a cognitive task to the manual task. Each task was graded to cater to various levels of ability so that participants can have the level of difficulty progressed to increase the challenges. Both groups received training for 1 hour, five times a week for 2 weeks. Balance measurement were taken immediately before the intervention and balance measurement was done after 2 weeks of intervention for both the groups on BBS and TUG. During the intervention a researcher was present along with the subjects to ensure safety. The study was approved by research and ethical committee of ISIC institute of Rehabilitation Sciences, New Delhi.

### **Data Analysis**

Statistical analysis was performed using SPSS software version 17.0. The demographic details of the subjects were compared using student's t-test. Paired t-test was used to compare the difference within the group whereas unpaired t-test was used to analyze the difference between group 1 and group 2 for pre and post intervention balance scores. A level of  $p \leq .05$  was considered significant.

### **Results**

The Group 1 consisted of 5 males and 20 females with a mean  $\pm$  S.D., age of  $70.36 \pm 4.98$  years, and the Group 2 consisted of 8 males and 17 females with a mean  $\pm$  S.D., age of  $70.48 \pm 4.37$  years received. The pre-intervention analysis scores of TUG between group 1 and 2 did not show any significant difference ( $p=0.134$ ). Similarly the BBS scores between group 1 and 2 also showed no significant differences ( $p = 0.164$ ). Table 1 indicates that both balance scales were matched between the groups. The Post-intervention comparison of TUG scores between group 1 and group 2 did not show any significant difference ( $p = 0.128$ ). However, post-intervention scores of BBS between the two groups showed statistically significant difference ( $p = 0.001$ ). Within group analysis, it was found that, there exist a significant difference in the pre-intervention and post-intervention TUG scores for group 1 ( $p=.001$ ) and group 2 ( $p=0.001$ ). BBS scores also showed significant changes for both the groups, (Table 2)

**Table 1**  
*Comparison of Timed Up and Go Test (TUG) and Berg Balance Scale (BBS)*  
*Pre and Post Intervention Scores Between Group 1 & 2*

	<i>Balance scale</i>	<i>Group 1 (N = 25)</i> <i>(Mean ± S.D.)</i>	<i>Group 2 (N = 25)</i> <i>(Mean ± S.D.)</i>	<i>T-value</i>	<i>P-value</i>
<b>TUG</b>	Pre intervention Scores	16.86 ± 3.87	15.10 ± 4.27	1.52N.S.	0.134
	Post intervention scores	13.34 ± 2.85	11.91 ± 3.63	1.55N.S.	0.128
<b>BBS</b>	Pre intervention Scores	38.64 ± 4.09	40.24 ± 3.90	1.41N.S.	0.164
	Pre intervention Scores	41.56 ± 3.33	45.52 ± 3.34	4.19*	0.001

N.S.– Non-significant,\*-significant at 0.05 level.

**Table 2**  
*Comparison of Timed Up and Go Test (TUG) and Berg Balance Scale (BBS)*  
*Pre and Post Intervention Scores Within Group 1 & 2*

<i>Groups</i>	<i>Balance Scales</i>	<i>Pre-intervention Scores (Mean ± S.D.)</i>	<i>Post-intervention Scores (Mean ± S.D.)</i>	<i>T-value</i>	<i>P-value</i>
Group 1	TUG	16.86 ± 3.87	13.34 ± 2.85	10.43*	0.001
	BBS	38.64 ± 4.09	41.56 ± 3.33	9.09*	0.001
Group 2	TUG	15.10 ± 4.27	11.91 ± 3.63	11.08*	0.001
	BBS	40.24 ± 3.90	45.52 ± 3.34	17.125*	0.001

\* Significant at 0.05 level.

## Discussion

This study was conducted to compare the difference in effects of general balance exercise program and specific balance strategy training program in the frail elderly population. Subjects of both the groups were matched with respect to their age. There was no statistically significant difference on TUG scores but there was a significant change in BBS scores in group 2 as compared to group 1. This improvement in Berg balance scores function might be due to the presentation of repetitive motor tasks that produced an improvement in performance called adaptation; which is an important element of balance function. Thus although balance of frail older persons initially is poor repetitive trials can lead to a improvement in performance. Our results are

consistent with previous reporting by Sullivan *et al.*, (2005) and there is similar reporting from Madureira *et al.*, (2007) stating that an intervention using the balance training is effective in improving the functional performance, static balance and mobility. A within group analysis showed improvement in both balance scales scores for both the groups but a percentage wise analysis showed a 13.2 per cent improvement on BBS scores and 21.12 per cent improvement on TUG scores for group 2 while the subjects of group 1 showed only a 7.56 per cent improvement on BBS scores and 20.81 per cent improvement on TUG scores. One factor that might have contributed to improved scores in the group 2 participants might be the design of balance training programme which was more focussed to retrain a specific function rather than improve overall fitness. These tasks contained elements that encouraged participants to bend, turn and reach to the limits of stability (e.g., while playing a game of ball catching and throwing) on various surfaces thereby providing added vestibular stimulation. Such intervention should have encouraged speed and size of movement which may have increased strength and endurance in addition to improving flexibility and reaction time. This could have resulted in more efficient movement to ambulate in the environment at a faster velocity. This result is consistent with findings of Gardiner *et al.*, (2001) and Mulrow *et al.*, (1994). The improvement shown in group 1 was less in terms of percentage than shown in group 2. A possible explanation could be that movement to the limits of stability was not an integral component nor were walking on different surfaces, turning and other rotational elements. The exercise programme used in this study can easily be implemented due to the well-described exercise and in addition all of the necessary equipments are portable; thus making it possible to exercise without transfer to a health care facility. Future research is needed to understand how long training benefits are sustained among the frail elderly population and what additional strategies are necessary to sustain and maximize benefits. Further assessment measurements such as muscle strength, proprioception and vestibular function may provide evidence regarding mode of action for components of the training programmes that contributed to the significant clinical balance measurement scores.

## Conclusion

The study found out that the specific balance strategy training program and general balance exercise programme show improvement in balance as on BBS and but not no improvement in TUG. So we conclude that there is an improvement in balance performance in terms of functional balance but specific balance training is not superior to general balance training in terms of improving mobility.

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## Possible Age and BMI Intervention of Postmenopausal Glucose Homeostasis

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### ABSTRACT

*Postmenopausal women seemingly comprise highly vulnerable age group at high risk of type 2 diabetes. Reproductive Ageing primarily targeted to loss of fecundity and degrading sexuality eventually destabilizes glucose and cholesterol mobilization and upsets their energy budget. Glucose homeostasis may be thought to suffer a serious jolt in the wake of changing metabolic needs and raised proneness to obesity with age. In this study, aimed at assessing possible age and BMI intervention of postmenopausal glucose homeostasis, one hundred and ninety nine randomly sampled urban women residing in Darbhanga and representing cross section of the society were tested for fasting and 2 Hr. post-prandial glucose concentrations and their Body Mass Index were also computed. Findings suggest marked influence of both age and obesity, believably the inescapable intrinsic and devastating modifiable risk factors of chronic hyperglycemia respectively upon glucose homeostasis among postmenopausal urban women. The paper highlights the importance of focussed attention on the pre-diabetic segment in all age categories in order to minimize disease incidence. Definitive measures for achieving sound glycemic health of postmenopausal urban human females through geriatric management have also been recommended for immediate implementation.*

**Key Words:** Postmenopausal, Type 2 Diabetes, Hyperglycemia, Glucose Homeostasis, Obesity, BMI, Age, Ageing, Impaired Glucose Tolerance.

Gerontologists regard optimized glucose homeostasis indispensable for sound glycemic health for all ages. Quite notably, postmenopausal women represent a class of elderly females with raised proneness to obesity and essentially at high risk of Type 2 Diabetes. A significant shift in their glucose and cholesterol mobilization possibly destabilizes their energy budget. Past history of gestational diabetes invariably serve as potent risk factor of chronic hyperglycemia symptomatic of Adult Onset Diabetes (De Moranville, 2002). Marked alterations of the female body shape besides an increase in Body Mass Index during and especially after menopause (Kirchengest, 1994) may be viewed as a physiological development with wide implications on metabolism and health on postmenopausal women. Quite pertinently, menopause is primarily targeted to render elderly women incapable of conception and reduce their sexuality. As a matter of fact, serious physiobiochemical perturbations in respect of carbohydrate metabolism arise as a consequence of changing metabolic needs. The present piece of work aimed at assessing age and BMI intervention of postmenopausal glucose homeostasis was undertaken in this perspective.

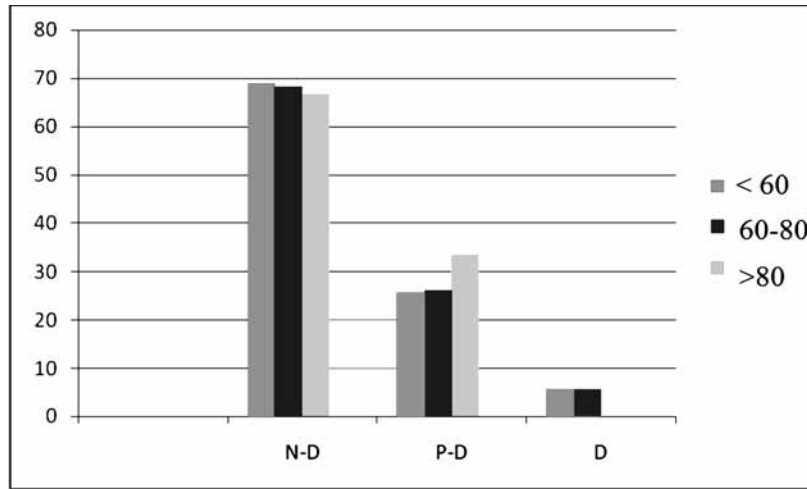
### **Materials and Method**

Fasting and 2 Hr. post-prandial blood glucose concentrations (FBG and 2Hr. PPBG) of randomly sampled postmenopausal women (n = 199) residing in Darbhanga, a commissioner town of North Bihar India and representing cross section of the society were estimated with prior permission using glucometric technique. Computation of Body Mass Index (BMI) was also done with the help of measured weight (kg) and height (m) values (Romerocorral *et al.*, 2008). Data were analyzed on the basis of observed mean values and per cent disease incidence.

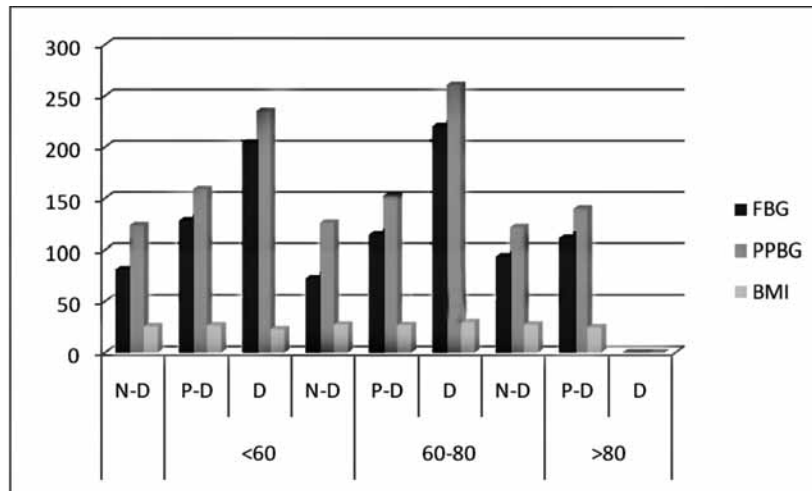
### **Results and Discussion**

Table 1–2 and Figure 1–2 depict the recorded data with regard to diabetogenicity among the subjects as a function of age and obesity. Reference values of blood glucose concentrations for non-diabetic

**Figure 1**  
*Prevalence Pattern (% population) of Non-diabetic, Pre-diabetic and Diabetic Postmenopausal Urban Women in Respective Age Brackets*



**Figure 1**  
*Mean Fasting and 2 Hr. Post-Prandial Blood Glucose Concentrations (mg/dl) and Mean BMI of Non-Diabetic, Pre-Diabetic and Diabetic Postmenopausal Urban Women in respective Age Brackets.*





(FBG < 110mg/dl and 2Hr. PPBG < 140 mg/dl), pre-diabetic (FBG 110–126mg/dl and 2Hr. PPBG 140–200 mg/dl) and diabetic (FBG  $\geq$  126 mg/dl and 2Hr. PPBG  $\geq$  200 mg/dl) as described by Mayfield (1998) were used. BMI values for normal weight, overweight and obese categories as suggested by Bainbridge *et al.*, (2004) were followed. Raised BMI indicative of overweight obesity level in majority of the cases appear in agreement with the findings of Satpathy *et al.*, (2005) affirming highly significant disease prevalence with increasing BMI such as 31.12 per cent, 31.82 per cent and 33.33 per cent hyperglycemia in chosen age brackets of < 60, 60–80 and > 80 years, respectively may be viewed in tune with reported 32.5 per cent diabetes incidence among elderly females (Sitara and Girija, 2010). 53.21 per cent diabetes prevalence among urban elderly women in the same study area. Matin, (2010) contrary findings could be attributed to selection of variable subjects with diverse physiopathological conditions and age categories. Subjects in the oldest old age interval showed least risk of diabetes possibly on account of rapidly declining BMI as a sequel of lowered dietary intake and subcutaneous fat depletion with advancing age. Pre-diabetics with impaired glucose tolerance in all age categories seem to be the most vulnerable segment demanding utmost geriatric attention. Conclusively it may be suggested that detrainment from high calorie glycemic diet, permissible aerobic exercises with regularity, de-stressing sessions of meditation and higher supplementation of sugar killer and anti-cholesterol herbs, viz., karaila (*Momordica charantia*), methi (*Trigonella foenum-graecum*), Tisi (*Linum usitassimum*), haldi (*Curcuma longa*), gurich (*Tinospora cordifolia*), jamun (*Syzygium cumini*) and gurnar (*Gymnema sylvestris*) could turn 'pre-diabetics' into 'non-diabetics' rather than 'diabetics'. Containment of chronic hyperglycemia through adiposity curtailment by way of dietary regulation, herbal application and raised physical activity may be thought to minimize the chances of obesity-linked metabolic diseases, viz. hypertension (Zoico *et al.*, 2004) and gouty arthritis (Choi, 2002, Takahashi *et al.*, 2000).

**Table 1**  
Prevalence Pattern (% population) of Non-diabetic, Pre-diabetic and Diabetic Postmenopausal Urban Women in Respective Age Brackets

Age Interval (Years.)	N-D	P-D	D
<60	68.89	25.56	05.56
60-80	68.18	26.14	05.68
>80	66.67	33.33	—

**Table 2**  
Mean Fasting and 2 Hr. Post-Prandial Blood Glucose Concentrations (mg/dl) and Mean BMI of Non-Diabetic, Pre-Diabetic and Diabetic Postmenopausal Urban Women in respective Age Brackets

Age Interval (Years)	Category	FBG	2 Hr. PPBG	BMI
<60	N-D	80.85	123.40	25.43
	P-D	127.90	158.70	26.33
	D	204.00	235.00	22.66
60-80	N-D	72.23	125.98	27.16
	P-D	114.39	152.19	26.27
>80	D	220.00	260.40	29.54
	N-D	93.50	121.50	27.27
	P-D	111.0	139.50	24.42

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## Age – Related Differential Diagnosis of Vaginal Bleeding in Postmenopausal Women

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### ABSTRACT

*The aim of this study was to estimate the incidence of postmenopausal vaginal bleeding and endometrial cancer and to identify the causes of vaginal bleeding in different age groups of postmenopausal women. This study was conducted at OPD in the GGS Medical college Faridkot (Punjab) on 150 patients with postmenopausal bleeding. After taking their history and examination, patients were subjected to TVS followed by dilatation and curettage or fractional curettage. Cervical biopsy was taken in selected cases. Most patients were in age group 45–55 years (56.6%) and decline thereafter. Benign histology was found in 52 (34.6%) women, 22.6 per cent were with atrophic endometrium having median age of 58.7 years. Benign endometrial polyps were the cause of bleeding in 13.3 per cent of the cases. The incidence of endometrial cancer in our study population was 9.33 per cent. The peak incidence of endometrial cancer during the study period was observed between the ages of 56–65 years with median age of 64 years and similarly declines with increasing age. The results of this study showing the age-related differential diagnosis can be used by the clinical practitioners when counselling postmenopausal women with vaginal bleeding. Malignancy has an important role in the etiology of PMB which needs a careful evaluation. This study showed a high prevalence of malignant disorders (24.6%) with carcinoma of cervix and endometrium having contribution in it. Multiparity was the most significant factor for carcinoma of endometrium.*

**Key Words:** Postmenopausal bleeding; Endometrial cancer  
Cervical cancer, Multiparty.

Postmenopausal bleeding (PMB) is defined as any bleeding that occurs from the genital tract more than 12 months after the last menstrual period in a woman who is not receiving Hormone Replacement Therapy (HRT) (Ind Thomas, 1998; Brand, 2007). The estimated incidence of bleeding immediately after the first 12 months of amenorrhea following the menopause is 409/1,000 person-years, falling to 42/1,000 person-years more than three years after menopause (Astrup K and De alivariuse NF, 2004). It is a frequent and alarming sign and exclusion of genital tract malignancy, especially endometrial carcinoma. Approximately, one in 10 women experiences this problem (Valerie, 2010). The reported incidence of endometrial carcinoma in women with postmenopausal vaginal bleeding varies widely between different studies, from 1 per cent to 24 per cent (Iberico *et al.*, 1989; Gredmark 1995; Gull *et al.*, 1996; Iatrakis *et al.*, 1997; Bachmann and Clark, 2003). Usually, this occurs in early years of menopause and is less frequent after 3 or more years of menopause. Increasing time interval between menopause and onset of postmenopausal bleeding is highly indicative of malignancy.

In developed countries more cases are due to benign lesions like atrophic vaginitis, uterine or cervical polyp, endometrial hyperplasia and atrophic endometritis. (Webster *et al.*, 2000; Mc Gregor, 2001; Youssef *et al.*, 2005). The situation is different in India and multiple studies conducted in different parts of the country showed a high prevalence of malignancy in patients of postmenopausal bleeding. (Ahmed *et al.*, 1996; Asif and Hamid, 1997; Liaquat and Noorani, 2000). Most probably it reflects the non availability of screening programmes, poverty, lack of education and ignorance regarding women's health. The average age of menopause is 51 years (Taipale *et al.*, 1994). Any woman who is still menstruating after 55 years should be viewed with suspicion and postmenopausal blood stained discharge has an equal significance to that of PMB (Cavanagh, 1999). Any woman with postmenopausal bleeding must be evaluated for endometrial carcinoma (Rubin, 1987). The assessment includes evaluation of risk factors like obesity, parity, family history of endometrial/breast carcinoma, personal history of breast/ovarian carcinoma, and drug history as HRT, tamoxifen and anticoagulants. A thorough physical examination followed by investigations such as cervical cytology, assessment of endometrial thickness by transvaginal ultrasound (TVS) and endometrial histopathology. Hysteroscopically guided endometrial biopsy is the gold standard investigation, but to limited facilities compel, dilatation and curettage (D & C) or fractional

curettage along with cervical biopsy is the main procedure for evaluation of such cases.

This study was designed and conducted to find out the aetiological factors for PMB with histopathological aid. The primary aim when investigating women with postmenopausal bleeding is to exclude endometrial malignancy and any significant additional abnormalities. An obvious lesion like atrophic vaginitis does not exclude another lesion. Many women are unable to distinguish between vaginal and urinary bleeding and some are unable to distinguish rectal bleeding too. This requires urgent evaluation by a qualified gynecologist. History and examination may possibly indicate cause but the dictum is that postmenopausal bleeding should be treated as malignant until proved otherwise. A total of 75 per cent of all curettage procedures performed for postmenopausal bleeding result in benign diagnosis, and therefore, if a non-invasive modality such as TVS can be accurately used to determine endometrial thickness and the measurement below which pathology is less likely, sampling must be avoided. The role of TVS is well established in the search for endometrial hyperplasia and carcinoma (Lerner *et al.*, 1996). The results of various studies have shown that the TVS measurement of endometrial thickness is currently used as a diagnostic tool in patients with postmenopausal bleeding. The studies consistently show that an ultrasonographically measured endometrial thickness of 4 or 5 mm or less almost completely excludes endometrial carcinoma (Granberg and Bourne, 1995).

### Materials and Methods

The study was a prospective study conducted at GGS Medical college Faridkot on 150 patients presenting in OPD with postmenopausal bleeding. Patients who had received HRT were excluded from the study. All the patients were properly counseled and written informed consent was obtained for the study. A prompt clinical evaluation was done, which included a problem oriented history and examination. History included age, parity, age of menarche, years since menopause; details of bleeding like mode of onset, amount, number of episodes, postcoital bleeding and any abnormal discharge. Family and personal history of genital tract malignancies was asked. Documentation of associated clinical factors like hypertension, diabetes, use of drugs as HRT, tamoxifen and anticoagulants were recorded. Complete physical examination with special attention to lymph nodes enlargement, abdominal examination per speculum examination along with Pap smear and digital vaginal

examination were carried out. All the patients were subjected to basic haematological investigation, urine analysis and pelvic ultrasound. Examination under anaesthesia (EUA) along with D & C was carried out; cervical biopsies were taken where indicated. All the tissues obtained were analysed histopathologically to correlate with the clinical diagnosis. Data were expressed as mean  $\pm$  SD. Frequency and percentage were computed for continuous data like age, duration of PMB and Parity. A chi-square test was applied to compare age groups with malignancy and parity. P-value  $< 0.05$  was considered as statistically significant.

### Results

A total of 150 women with typical history of PMB were included in this study. Postmenopausal vaginal bleeding among patients presenting to us peaks at the age of 45–55 years (56.6%), in 56–65 years age group it is 33.3 per cent and 10 per cent in patients of 66–75 years age group. The mean age was  $59.82 \pm 7.82$  years (95% CI, 57.59–62.04). The minimum age was 45 years and maximum was 72 years.

**Table 1**  
*Shows the Frequency of Vaginal Bleeding in Different Age Groups*

<i>Age Group</i>	<i>No of Patients</i>
45–55 years group 1	85 (56.6%)
56–65 years group 2	50 (33.3%)
65–75 years group 3	15 (10%)

Of the patients 85 per cent had regular menstrual cycles in their reproductive period. Only 15 per cent patients had irregular menstrual cycles. The mean age of menopause was  $44.71 \pm 2.37$  years. The mean age of menopause in 14 women with endometrial cancer was 55 years, which showed that late age of menopause is a risk factor which is associated with endometrial carcinoma (Brinton, *et al.*, 1993). In most of the patients (84) the duration of postmenopausal bleeding was from 6 months to 1 year. The lowest duration of postmenopausal bleeding was 2 months and the highest duration was 3 years. On examination, bleeding per vaginum was found in 88 patients. The maximum number of patients (61) in group 1 had atrophic uterus on P/V examination. Normal sized uterus was found in (60) patients and multiparous uterus was found in (15) patients. Enlarged uterus was palpated in 14 patients. After conducting TVS, endometrial sampling of these patients were taken by fractional curettage or dilatation and

curettage in patients with endometrial polyps. In the present study, ten out of fourteen cases of endometrial carcinoma were nulliparous and the other four were multiparous. The mean parity of malignant cases was  $1.6 \pm 0.5$  and that of non-malignant cases was  $3.2 \pm 1.55$ . This is similar to the observation made in other studies that nulliparity or low parity is a risk factor which is associated with endometrial cancer (Brinton, *et al.*, 1993). The difference in parity between the women with benign and malignant changes was not significant, as the number of patients with endometrial carcinoma was very less.

In the present study malignant changes in histopathology were found in 37 (24.6%) patients with PMB, 23 (15.3%) had Ca Cervix and 14 (9.33%) were diagnosed as Ca endometrium. The peak incidence of endometrial cancer is noted in the age group 56–65 years (4.66%) as compared to 4 per cent in above 66 years group and 0.66 per cent in 45–55 years age group. On comparison with age groups, 11 (7.33%) patients were diagnosed malignant with dominance of Ca Cervix in group 1. On the other hand, 17 (11.33%) patients were found malignant in group 2 again with dominance of Ca cervix. In group 3, 9 (6%) presented malignancy with dominance of Ca endometrium. Benign pathology was encountered in 52 (34.6%) cases; benign atrophic endometrium in 34 (22.6 %), polyp in 20 (13.3%). Premalignant condition (Atypical endometrial hyperplasia) in 07 (4.6%). In the present study, the median age for women with benign changes in the endometrium was found to be 53 years and the median age for women with malignant changes in the endometrium was 64 years, which is consistent with other studies. (Taipale, *et al.*, 1994)

In group 1, benign pathology (includes simple hyperplasia, endometritis or insignificant pathology) in 32 per cent was found as most common cause of PMB followed by benign polyps (10%) carcinoma cervix in 6.66 per cent, atrophic endometium in 5.35 per cent, atypical endometrial hyperplasia in 2 per cent and carcinoma endometrium in 0.66 per cent. While in group 2 atrophic endometrium (13.33%) was most common cause of PMB followed by carcinoma cervix (6.66%). In older patients of group 3 atrophic endometrium and carcinoma endometrium were equally distributed (4%) followed by carcinoma of cervix (2%). A high proportion of women with atrophic endometrium and atypical uterine bleeding supports the suggestion that sclerotic vessel changes with consequent venous or arterial ruptures are the most common causes of atypical postmenopausal bleeding (Iatrakis *et al.*, 1997)



**Table 2**  
Shows the Underlying Cause of Bleeding in Different Age Groups of Women

Age Groups	Benign Pathology	Benign Polyps	Atrophic Endometium	Endometrial Hyperplasia	Carcinoma Endometrium	Carcinoma Cervix
45-55 years group 1	48 (32%)	15(10%)	8 (5.35%)	3 (2%)	1 (0.66%)	10 (6.66%)
56-65 years group 2	4 (3.33%)	5 (3.33%)	20 (13.33%)	4 (2.66%)	7 (4.66%)	10 (6.66%)
66-75 years group 3			6 (4%)		6 (4%)	3 (2%)

## Discussion

Our study reports on the outcome of investigations on a large cohort of postmenopausal women with vaginal bleeding. The famous dictum that "Postmenopausal bleeding must be considered as indicative of malignant disease until proven otherwise," still holds true in our circumstances. The general consensus regarding management of PMB is that all patients must be excluded of cancer by oriented biopsy. In this series of 150 cases, malignancy was found on histopathology in 37 (24.6%) patients with PMB, 23 (15.3%) had Ca Cervix and 14 (9.33%) were diagnosed as Ca endometrium. The reported incidence of endometrial carcinoma varies between different studies. The incidence of endometrial carcinoma reported by Iatrakis *et al.*, (1997) had 11.1 per cent incidence of cancer in their study; Choo *et al.*, (1985) and Lidor *et al.*, (1986) found a similar rate of carcinoma of 7 per cent. In these studies there was variation in the selection criteria used and also the prevalence of risk factors for endometrial carcinoma. This may have contributed to the wide range in the observed incidence of endometrial carcinoma. The earlier studies showed a prevalence of malignancy in PMB around 35 per cent (Cospi, 1997). While the more recent prevalence is quoted to be around 9.9 per cent (Aaissia, 2005). This drop in prevalence of malignancy reflects the awareness of women and availability of screening facilities. The situation is not satisfactory in developing countries and malignancy of the genital tract is the existing pathology in a large number of cases. Panda *et al.*, (1997) from India showed a prevalence of 63.6 per cent, Wonderossen from Ethiopia (2001) 60.8 per cent and Ghazi *et al.*, (2005), 20 per cent. The frequency found in our study (24.6%) occupies a middle position when compared with local studies. In the present study, endometrial carcinoma accounted for 9.33 per cent cases of PMB which is almost

consistent with the reported incidence (14.89%) of Siyal and coworkers (1999). Carcinoma of cervix was responsible for 15.33 per cent PMB, while it is reported to be 8.8 per cent by Ghazi *et al.*, (2005) which is most likely due to ignorance, illiteracy in our area and lack of effectiveness of national cervical screening programme. In the present study, the peak of invasive endometrial carcinoma was found at 56–65 years and carcinoma of cervix was equally distributed between 45–55 years and 56–65 years.

The peak incidence of cancer found by Gredmark *et al.*, (1995) in their study was in the age interval of 65–69 years. There is a strong correlation of carcinoma of endometrium with nulliparity and low parity. Endometrial hyperplasia, a precursor of endometrial carcinoma was found in 4.6 per cent patients. Benign lesions as a cause of PMB were found in 52 (34.6%) cases; benign atrophic endometrium in 34 (22.6 %), polyp in 20 (13.3%). Premalignant condition (atypical endometrial hyperplasia) in 07 (4.6%) consistent with the reported incidence of Ghazi *et al.*, (2005) and much lower than the reported incidence in the developed world (Valerie, 2010; Youssef *et al.*, 2005).

### Conclusion

Abnormal PMB accounts for a significant proportion of gynaecological referrals. Excluding endometrial carcinoma is the primary aim of investigation. This study shows a high prevalence of malignant disorder (24.6%) with Carcinoma of cervix 15.3 per cent and carcinoma of endometrium 9.33 per cent patients reflecting the non availability of screening programmes, poverty, lack of education and ignorance regarding women's health . Nulliparity and late age of menopause are the significant risk factor with carcinoma of endometrium . Considering the above data, all patients with PMB need careful evaluation . Despite the fact that benign pathology is more frequent than malignancy as a cause postmenopausal uterine bleeding, we must always rule out a cancer by oriented biopsy.

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## Spoken Discourse in Elderly Malayalam Speakers: Influence of Age, Gender and Education

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### ABSTRACT

*Discourse is one aspect of pragmatics, which has been used to refer to conversation or sentence strings in monologue, dialogue and text. The clinical use of discourse analysis as a means of describing language in language-impaired individuals and elderly is becoming increasingly prevalent among speech language pathologists despite limited research carried out in Indian context. The present study investigated narrative and procedural discourse abilities in elderly Malayalam speakers' discourse with respect to age, gender and education in the domains of spoken discourse. Propositions of their discourse were analyzed in terms of content, number of words and sentences, speaking rate and mean length of utterance. The results revealed that there is a great deal of difference in discourse texture in elderly in comparison to young adults. The age and educational differences showed more effect on spoken discourse than the gender difference on different types of discourse elicitation tasks. This difference in spoken discourse production for the age and educational differences can be attributed to various multiple causative factors that could account for linguistic variations associated with advancing age. Findings of the study*

*emphasize the need for pairing discourse analysis along with the routine language evaluation.*

**Key Words:** Spoken Discourse, Elicitation Task, Elderly Adults, Malayalam

Traditionally, language has been described in terms of content (semantics) and form (syntax, morphology). Recently the focus has drifted towards pragmatic aspects of language. As pragmatic research accesses dynamic aspects of communication in real life situations, the clinical utility of pragmatic analysis is becoming increasingly prevalent among Speech Language Pathologists.

Among various aspects of pragmatics, discourse production is considered as one of the integral part of communication. Discourse involves studying language at the level of connected speech. The knowledge and competence of producing spoken discourse determines the extent to which the speakers successfully communicate message to the listeners. There are various types of discourse, including procedural (describes the procedures involved in performing an activity), expository (conveys information on a single topic by a single speaker), conversational (conveys information between a speaker and a listener or among several speakers and listeners), and narrative (a description of events). The distinct structural organization and content of each discourse type places different cognitive and linguistic demands on the communicator (Ulatowska & Chapman, 1989).

Spoken discourse is influenced by various factors including elicitation task (interview/picture descriptions/story retelling), type of picture stimuli (picture sequence/single picture), gender difference, education (higher versus lower education), socioeconomic status, listeners knowledge and variation in scoring measures. (Brenneise-Sarshad, *et al.*, 1991; Shadden, *et al.*, 1991; Wambaugh, *et al.*, 1991; Arbuckle & Gold, 1993; Ulatowska, *et al.*, 1998; Coelho, 2002; Lehman Blake, 2006). For the current study, among the factors, the most significant factors affecting discourse such as age, gender, education and the elicitation task has been addressed.

Quantitative as well as qualitative aspects of discourse had been studied among elderly. With respect to narrative speech, Juncos-Rabadan, *et al.*, (2005) and Brandao and Parente (2009) reported of age related changes in quantity of speech with decrease in

density of informational content and cohesive reference of narratives and an increase in irrelevant content. Authors attributed this pattern to cognitive decrements and pragmatic change that occurs in aging. On task involving procedural discourse production, North, *et al.*, (1986) reported that elderly women produced descriptions containing a lower number of propositions which described the essential steps as compared to younger women. Similarly, Marini, *et al.*, (2005) compared narrative production of healthy Italian adults, (morphologically rich language in contrast to English) in five age groups and reported of irregular age related changes of microlinguistic (semantic paraphasia, paragrammatism, syntactic complexity), macrolinguistic (local and global coherence and local coherence errors) and level of informativeness. These variations were linked to a weakened working memory capacity and difficulty in establishing adequate coherence within a text. Based on the language related differences in performance observed, authors reported the need for conducting studies in languages with different typological structures than English. Contrary to the above findings, Ulatowska *et al.*, (1998) in their longitudinal study on sixteen normal adults showed preservation of macrolevel processing of discourse with increased age. No significant decrease in performance was also found in applying strategies of reduction, generalization and interpretation which challenged the view that the age is associated only with inevitable decline. Based on nature of information recalled (Adams, 1991; Baltes, 1993) older adults develop strategies that promote successful encoding of discourse information which could be developed as a compensatory strategy to overcome memory problems or as a stylistic preference that unfolds with age. Similarly, studies reports of effect of education in discourse (Le Dorze & Bedard, 1998; Mackenzie, 2000) with those elderly individuals not educated beyond minimal school leaving producing shorter and less complete descriptions.

Spoken discourse have been studied most extensively in many clinical populations including persons with aphasia, dementia, right hemisphere damaged, closed head injury, mild cognitive impairment and epilepsy (Doyle, *et al.*, 1995; Dijkstra, *et al.*, 2002; Lehman Blake, 2006) wherein relationship with discourse has been well established. Though extensive research on discourse abilities are reported in clinical population, relatively limited conclusive research exist on the pattern of discourse abilities in elderly. This makes the Speech

Language Pathologists in dilemma in drawing inference about the discourse deficits in clinical population in comparison to normal population. This information is therefore important from the viewpoint of understanding normal pattern of discourse production and how discourse has an effect on clinical population.

Given that India is a multilingual and multicultural society, data on discourse characteristics of elderly population, who fall into the fastest growing section of population, are scant in Indian context. No published data are available with respect to discourse characteristics in normal population. Compared to other states in India, Kerala, a South Indian state, has the highest proportion of elderly. Population projections predict that the elderly population in Kerala, a south Indian state, will increase from 2.2 million in 1986 to 4.6 million in 2011 to 8.3 million in 2026 (Rajan, 1989). Malayalam, one of the major Dravidian languages, has official language status in the state of Kerala.

The need to define and describe discourse among elderly in Indian context is essential due to the projected increase in the population of the elderly in Kerala. Culturally appropriate and relevant norms need to be derived from local population before administering on clinical population in the particular culture. In addition to differences in pronunciation, vocabulary and grammatical structures among cultural groups, variations also exist in the rules for general discourse in verbal communication. In communicating with one another, individuals naturally follow the assumptions and rules governing discourse within their respective cultures. Cultural language differences in verbal and non verbal communication have an impact on the ways in which language is used pragmatically. It is therefore important to conduct spoken discourse studies in Indian languages in order to not only understand the changes with respect to normal aging on quantity and content of speech but also to evaluate and treat discourse deficits in patients with brain damage based on normal discourse behavior.

The present study aims to explore the discourse production in young adults and elderly. The purpose of the present study is twofold. First, investigation was done to compare age and gender related changes in elderly and young adults with respect to narrative and procedural discourse. Second was to investigate the influence of education on spoken discourse only in elderly group.



## Method

### *Participants*

The participants who are proficient in speaking and understanding the language and with primary education of at least fourth grade were included in the study. Two groups of participants were included in the study – Group A comprised of sixty elderly (age range: 55–75 years) and Group B consisted of sixty young adults group (age range: 20–28 years of age). Both genders were included in the study and comprised of 30 in each group. The participants in the elderly group were classified based on education into higher educational level (above 10 years of education) and lower educational level (below 10 years of education) and consisted of 15 in each group. The classification based on education was done only for the elderly group since the illiteracy rate among young adults is minimal in urban areas. In states like Kerala, with a long tradition of initial education, in which almost all children attend primary school, illiteracy is considered a disadvantage. Participants with self-reported history of neurologic or psychiatric illness, obvious sensory (hearing/visual) or motor alterations (physical disabilities), on drugs affecting central nervous system were excluded from the study. Data was collected from the senior citizen groups, retirement homes for elderly with young adults represented from a cross section of occupation.

**Table 1**  
*Distribution of the Sample by Age Group, Gender and Educational Level  
(mean and standard deviations)*

<i>Group</i>	<i>Age Group</i>	<i>Age Mean (SD)</i>	<i>N</i>	<i>Male</i>	<i>Female</i>	<i>Educational Level (N)</i>
Elderly adults	55–75 years	65.40 (3.00)	60	30	30	15- Higher education 15- Lower education
Young adults	20–28 years	24.22 (3.00)	60	30	30	—

## Procedure

### *Administration*

The participants were seated comfortably in a quiet room with ambience conducive for recording. Only the clinician and the

participants were present in the room. Participants were trained first on a picture description task using practice picture stimuli (general family picture, taken from a Malayalam magazine), which was presented on a single A4 sheet paper. The clinician instructed the participant to describe the picture as complete as possible. Instructions and feedback were provided, as needed, until the clinician felt that the participant understood the task. Following practice and training, the stimulus picture for Task 1 was presented. For this, 'Cookie Theft' picture, (adapted from, The Boston Diagnostic Aphasia Examination (BDAE), Goodglass & Kaplan, 1983), was presented on a single A4 sheet of paper. The picture stimuli was used as the content of speech produced was relatively predictable. The clinician used the standard phrase, "Try to describe the picture as complete as possible" and only intervened to encourage narrative effort with 'Can you tell me more?' whenever the participant was not able to produce at least 15 seconds of speech. No additional prompts and response contingent feedback were given regarding the accuracy or appropriateness of the response. Before proceeding to Task 2, practice on procedural information task was done by instructing "Tell me how you would go about washing car/making coffee?" for a male and a female respectively. Gender depended tasks was used for training purpose which were based on the participant's familiarity with the task in their day to day life. Here also, instructions and feedback were provided, as needed, until the clinician felt that the participant understood the task. After completion of practice trial, all participants were given common stimuli for the actual testing of the discourse in Task 2. Here the participants were instructed, "Tell me how you would go about writing and sending a letter?". The procedure was similar to Task 1.

### **Recording**

The samples of both the task were audio-recorded using a Digital recorder (Sony Stereo Recorder, WM-GX100) in a less noisy environment. All the participants knew that they were being taped. The audio taped sample was transferred to the computer and stored for future analysis.

### Analysis

The audio taped sample was then transcribed by writing down the responses. Consequently, repeated listening was made in order to record all the utterances and have the most complete transcription as possible.

### Scoring

Scoring was done on the measures of quantity of speech including Number of words, Number of sentences, Mean Length of Utterances (MLU) and Speaking rate. Along with the above measures, Faithful Content, Unfaithful Content and Overall content quality were also calculated based on adaptation of scoring rules of Nicholas & Brookshire, 1993 as shown in Table 2.

**Table 2**  
*Descriptions of Measures of Spoken Discourse*

<i>Measures</i>	<i>Descriptions</i>
Number of words	Total number of morphemes in the speech sample based on Nicholas et al., 1993
Number of sentences	Total number of sentences in the speech sample
Mean length of utterances (MLU)	Number of morphemes/Total number of utterances based on Lund and Duchan (1988, cited in, Shipley & McAfee, 1992)
Speaking rate	Total number of morphemes spoken in a minute calculated using stopwatch
Faithful Content	Number of units expressing content based on Nicholas et al., 1993 divided by total number of words
Unfaithful Content	Total number of irrelevant, additional, ambiguous units divided by total number of words
Overall content quality	Total number of faithful units - Total number of unfaithful units divided by total number of words

All words that are intelligible were counted. Even the words that contain sound substitutions, omissions, distortions, or additions if the word is intelligible in context (/waster/for/water/) were included for analysis. If the incorrect production result is another real word that does not appear to be the target word, it was still included in the word count (/care/for/chair/). Contractions (*don't*, *he's*) and colloquial,

each word in proper names (*Mary John as 2 words*) and numbers (*Twenty two as 2 words*), were calculated as separate words. However, statements that were made, before or after the speaker performs the task (example: *I hope I can remember/that's about it/I cant say anymore*) were excluded from analysis. Those words or partial words those were not intelligible in context (example: Boy was standing *soabl*), Nonword filler (*um, er, uh*) were also omitted. In order to calculate the number of sentences, all the intelligible sentences were taken up for analysis. Calculation of mean length of analysis involved exclusion of imitations, partial & unintelligible utterances, false starts, non meaningful words. Contractions, plurals, possessive nouns, third person singular verb, etc., were calculated as more than one morpheme.

Words that were intelligible in context, accurate in relation to the picture/topic and relevant to and informative about the content of the picture and topic were included as faithful content. Usage of words such as 'biscuits' instead of 'cookies' or sentences that expresses some aspects of the character such as "mummy is going to get angry" or "he will be falling down" were considered as acceptable. Those concepts judged not related to the task, like, commenting on the quality of the artistry or making assumptions beyond what is evident in the picture or talking about personal experiences not related to the procedural task was counted as unfaithful content.

### Statistical Analysis

The samples were collected using Simple Random Sampling method and the data were subjected to detailed statistical analysis. For comparing the effect of age across two tasks, repeated measures of ANOVA and Paired t test was used for comparing across gender and education using SPSS version 14. Categories having p value less than 0.05 were taken as statistically significant. Two trained Speech Language Pathologists verified the accuracy of transcripts independently by transcribing separately the samples and analyzing them for all seven discourse parameters and > 85 per cent agreement was obtained. Based on the analysis, appropriate inferences were drawn.

## Results

### *Effects of Age*

**Table 3**  
*Mean and Standard Deviation for Seven Discourse Characteristics  
 According to Age Group (elderly and young adults) and Type of Task  
 (narrative and procedural)*

<i>Parameter</i>	<i>Elderly Mean (SD)</i>	<i>Young Adults Mean (SD)</i>
<b>Number of Words</b>		
Narrative	116(67)	95(48)
Procedural	103(78)	71(37)
<b>Number of Sentences</b>		
Narrative	14(07)	13(05)
Procedural	08(05)	08(03)
<b>MLU</b>		
Narrative	08(03)	07(02)
Procedural	11(03)	08(02)
<b>Speaking Rate</b>		
Narrative	209(68)	184(77)
Procedural	197(70)	145(58)
<b>Faithful Content</b>		
Narrative	.85(.08)	.93(.03)
Procedural	.90(.04)	.93(.03)
<b>Unfaithful Content</b>		
Narrative	.13(.07)	.06(.03)
Procedural	.09(.04)	.06(.03)
<b>Overall Content</b>		
Narrative	.03(.16)	.03(.14)
Procedural	.02(.11)	.01(.14)

As revealed in Table 3, the mean values for all the parameters including number of words, sentences, mean length of utterance and speaking rate were higher for elderly for both the tasks as compared to young adults. With respect to content, the faithful content was

reduced and unfaithful content greater in the elderly; however, the overall content was similar to young adults. Statistically significant difference was found between elderly and young adult group on measures of number of words (0.007), mean length of utterance (0.000), speaking rate (0.000), faithful (0.000) and unfaithful content (0.000). However, the number of sentences (0.169) and overall content (0.745) did not show any significant age effect.

### Effect of Gender

**Table 4**  
*Mean and Standard Deviation of the Seven Discourse Characteristics Across Males and Females*

<i>Parameter</i>	<i>Male Mean (SD)</i>	<i>Female Mean (SD)</i>
<b>Number of Words</b>		
Narrative	114 (68)	96(49)
Procedural	97(71)	78(53)
<b>Number of Sentences</b>		
Narrative	13(06)	14(06)
Procedural	09(04)	08(04)
<b>MLU</b>		
Narrative	08(03)	07(02)
Procedural	10(03)	10(03)
<b>Speaking Rate</b>		
Narrative	202(81)	192(65)
Procedural	175(77)	167(61)
<b>Faithful Content</b>		
Narrative	.90(.07)	.89(.84)
Procedural	.91(.46)	.92(.41)
<b>Unfaithful Content</b>		
Narrative	.99(.70)	.95(.63)
Procedural	.80(.46)	.79(.41)
<b>Overall Content</b>		
Narrative	.26(.11)	.50 (.17)
Procedural	.14(.15)	.31(.11)

Table 4 reveals the discourse performance across gender group on the two type of elicitation task. Overall gender difference has been reported since no difference was observed in younger and older age groups. Scrutiny of Table 4 revealed no statistically significant gender effect ( $p > .05$ ) observed on all the parameters, though greater mean values of number of words, speaking rate and unfaithful content and lower mean values of overall content were found in males as compared to females. The measures of mean length of utterance, number of sentences and faithful units did not vary between the two groups.

### Effects of Education

**Table 5**  
*Means and SDs of the Seven Discourse Parameters of the Elderly Group as a Function of Education*

<i>Parameter</i>	<i>Higher Education Mean (SD)</i>	<i>Lower Education Mean (SD)</i>
<b>Number of Words</b>		
Narrative	140(79)	91(41)
Procedural	129(90)	77(53)
<b>Number of Sentences</b>		
Narrative	16(08)	13(05)
Procedural	11(05)	07(04)
<b>MLU</b>		
Narrative	09(03)	07(02)
Procedural	12(03)	11(03)
<b>Speaking Rate</b>		
Narrative	225(72)	194(60)
Procedural	216(65)	177(71)
<b>Faithful Content</b>		
Narrative	.90(.55)	.81(.89)
Procedural	.93(.42)	.88(.40)
<b>Unfaithful Content</b>		
Narrative	.99(.55)	.16(.77)
Procedural	.65(.42)	.11(.40)
<b>Overall Content</b>		
Narrative	.66(.22)	.81(.41)
Procedural	.38(.15)	.19(.36)

Table 5 revealed significant differences between higher and lower education elderly participants on measures of number of sentences, number of words, speaking rate, and faithful and unfaithful content. Increased number of words (0.002), sentences (0.003), greater speaking rate (0.013) and greater faithful (0.000) and unfaithful content (0.000) were observed in the higher education group as compared to lower education group. No significant educational difference effect was seen for measures of mean length of utterance (0.081) and overall content (0.124).

### **Different Elicitation Tasks**

The present study also compared the age, gender and educational effect on two types of spoken discourse tasks (narrative and procedural). Between these two tasks, greater mean values were observed for narrative than procedural tasks for all measures except for measure of mean length of utterance and faithful content with respect to age and education. With respect to gender, between the two tasks, greater mean value was observed for narrative as compared to procedural task except for the measure of mean length of utterance.

### **Discussion**

In the present study, discourse was studied with respect to various factors such as age, gender and education among young and elderly adults. Across age group, findings of the present study revealed that elderly adults presented an increase in the number of words, mean length of utterance, speaking rate and reduction in the number of sentences produced as compared to young adults. It was observed that, elderly adults tend to use more words to explain their ideas, tend to rephrase an idea several different ways in same conversation and tend to state their ideas less directly. It was also noted that elderly uses an elaborated speech to explain the concept they want to indicate using more number of words and sentences. This elaborated speech can be considered as more of a strategy used by elderly to help in retrieval of events on the spoken discourse tasks which requires an organized construction of discourse more than just description. It was also observed that even though the number of words and sentences were relatively less among young adults, the complexity of sentence used and the content of speech conveyed was more structured and organized among young adults as compared to elderly group. These above findings indicate that discourse skills alter and vary with



advancing age in the parameters studied. These findings correlate with those of Shewan & Henderson (1988); Gould and Dixon (1993); Juncos-Rabadan *et al.*, (2005) and Mackenzie (2000) who reported that the younger group uses significantly fewer utterances, speak for shorter times with the total amount of information conveyed being almost identical for both the elderly and young adult. These findings were related to age related decline in pragmatic skills rather than in semantic terms. Contrary to this, Shadden (1997) reported that even though basic conversational skills are preserved, there is heterogeneity in older adults' discourse behaviors and they have a tendency to use shorter and less complex sentences.

Across the two tasks, it was also apparent that spoken discourse was depended on the elicitation task used, with performance on narrative tasks being higher than on procedural tasks in most of the measures across age, gender and education. For example, in the present study, during the narrative task, elderly participants made subjective remarks about the picture with appreciation of events and describing the emotional states of characters as compared to procedural task. This may be due to the better amount of personal experience among older adults which comes with age. Moreover, picture narration tasks involve visual attention and procedural narratives require knowledge, use of scripts and good organizational abilities (Duong & Ska, 2001). Results of present study may also be attributed to this difference in elicitation task. Although picture narration may be a somewhat artificial task, it allows the sampling of connected discourse in a standardized fashion, with minimum memory requirement. There are reports in the literature that specific elicitation task and stimulus can affect discourse production (Shadden *et al.*, 1991; Marini *et al.*, 2005). James, *et al.*, (1998) and Mackenzie (2000) reported an increase in the amount of off-topic speech in older adults for autobiographical interviews and conversation than picture description task. The results of the present study also indicated that there is an inter subject variability and the pattern of discourse style varied among the older and the younger group. Similar findings have been reported (Joanette, *et al.*; 1986; Obler, *et al.*, 1994) in the literature.

With respect to content, the amount of unfaithful units was greater and the amount of faithful content reduced in the elderly group; however, the overall content did not vary between the groups. It was observed that elderly adults' replies were less relevant to the

proposed topic than were those of young adults. Elderly used larger number of utterances that are irrelevant to the main topic while describing the task with difficulty in organizing the content of speech. Differences in narrative performance among older adults as compared to young adults are explainable by Inhibition deficit hypothesis (Arbuckle & Gold, 1993) and Pragmatic change hypothesis (Brandao & Parente, 2009). According to these authors, increased verbosity in terms of unfaithful content is plausibly addressed by the fact that aging involves a pragmatic evolution leading to greater value being placed on conversation and decline in the transmission of informative content explained by some kind of age related inhibitory deficit and extroversion in older adults. However, only above mentioned deficits cannot by itself explain the changes in spoken discourse with increasing age. In the words of James, *et al.*, (1998), “a better understanding of language in old age requires consideration of not only older adults’ cognitive decrements but also of the social and personal changes that accompany old age”. Therefore both age related decline in language production associated to inhibitory deficit and age related change in narrative production associated with social context.

With respect to gender, the present study revealed that gender is not a significant factor affecting spoken discourse, even though higher performance was seen among females. It was noticed that, women tended to describe the picture/procedure more elaboratively, used more questions and provided comments as compared to men; these being similar with the study of Mackenzie, (2000). However, previous research in this area (Ceccaldi, *et al.*, 1996) has been inconsistent with reference to results as they related old men having greater quantity of output as compared to women.

In terms of educational effects, the present study indicates that, elderly individuals in higher education produced more number of words and sentences, greater speaking rate and greater faithful and unfaithful content as compared to lower education in elderly group. This could be attributed to higher educational level in Kerala and greater experience in their working environment. Findings of the present study is in consonance with the fact that education is known to aid discourse performance as reported by Le Dorze & Bedard (1998) and Mackenzie (2000).

The present study, focusing on age, gender and educational effect is important from the viewpoint of understanding the discourse

production in normal individuals. Though the effects of these variables can affect their communication, the effects, when present, are subtle. Most of the effects are influenced by factors including participant's cognitive skills, educational level, speaking style, motivation and mental status. This knowledge would be useful to caregivers of elderly and clinicians who are interested in modifying their own conversational style to support and maintain satisfying interactions with elderly persons. Information about how normal elderly use discourse differently when conversing could guide us in future designing of education and training protocols to facilitate conversational interactions with persons with linguistic deficits. Future researches need to probe in depth regarding how discourse performance varies in patients with pragmatic deficits and individuals with advancing age.

### Conclusion

Communication skills play an important role in elderly's life. Present study findings provide additional insights into the manner in which discourse texture vary in elderly individuals with respect to age, gender and education. It was observed that age related changes in spoken language with clear advantage for higher education group as compared to lower education and no gender effect. It was also noted that different elicitation tasks affected discourse production differently with better performance on narrative as compared to procedural discourse. These variations in spoken discourse production for the age and educational differences could be attributed to multiple factors including linguistic, cognitive and pragmatic change that accompanies aging. Age and education are therefore relevant to interpretation of discourse test performance. Findings of the study emphasize the need for pairing discourse analysis along with the routine language evaluation while evaluating participants with brain damage.

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## Assessing The Impact of Physical Exercise on The Health and Well-being of Older Persons In Nigeria

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### ABSTRACT

*The study examined the impact of exercise on the health and well-being of older persons. Data was collected through individual-based questionnaire and multi-stage sampling procedure was used to select elderly persons in Ojo LGA of Lagos State, Nigeria. In all, 242 respondents were interviewed. Face-to-face interviews were therefore conducted. Simple statistics was used to examine the relationship between the variables. The study revealed that elderly persons reported cases of medical challenges. It was also found that even though most of them are not involve in exercises, they still expressed its importance in good health and over all well-being of older persons. The study therefore concludes that most of the aged suffer from coronary heart disease (CHD), Strokes, Type II diabetes, Obesity, Hypertension, colorectal cancer, Osteo-arthritis, Low back pain, Weakness and headaches and these diseases and illnesses can be controlled and prevented through exercise. For instance, Jogging, Brisk walking, Running on treadmill, Dancing and Riding on a bicycle ego meter.*

**Key Words:** Exercise, Health, Well-being, Elderly, Nigeria.

The remarkable increase in the mean life expectancy observed over the past 100 years has not been achieved through retardation of the ageing process but elimination and control of the diseases that cause premature deaths. It should be noted that life expectancy was reduced because of diseases especially childhood diseases, Morgan (1991) predicted that through medical technology, an increase of 50 years in life expectancy by the year 2020 with ultimate longevity of up to 200 years.

One of the most widely-used definitions of health is that of the World Health Organization (WHO), which defines health as: “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. This definition goes well beyond a condition of physical health but includes mental health and general well-being.

In recent times, there has been a progressive decline in the level of physical activity in people’s daily lives in developed countries. For a majority of people, little physical effort is involved any more in their work, domestic chores, transportation and leisure. Whilst specific health risks differ between countries and regions, the fact remains that physical inactivity is a major risk factor for most common non-communicable diseases and physical activity can counteract many of the ill effects of inactivity (Wikipedia, 2009).

The WHO (2002) estimates that, with the inclusion of sub-Saharan Africa, chronic diseases are now the leading causes of death in the world. The WHO cites four non-communicable diseases that make the largest contribution to mortality in low- and middle-income countries, namely: cardiovascular disease, cancer, chronic respiratory disease, and diabetes.

Sport and physical activity has long been used as a tool to improve mental, physical and social well-being. Physical inactivity is a major risk factor associated with a large number of lifestyle diseases such as cardiovascular disease, cancer, diabetes and obesity. Being healthy according to Anderson (1998) does not only mean being well but the ability of an individual to partake in his/her daily routine without undue fatigue. Kent *et al.*, (2000) also posited that health is the



total functioning of an individual, biologically, mentally and economically which allows such an individual interact with the society.

Man spends half of this life getting and keeping health, the other half is being spent using health to do those things we want to do (Sorochan and Bender, (2005). People are becoming more and more concerned about the quality of their life and the concern takes many forms. Hence, we brush our teeth, eat good food, take care of the body, sweep the surroundings and treat diseases and injuries. As a result, specialists are pointing out dangerous things in man's environment that can affect health. The health dilemmas arose as result of the conflict in health values, when traditional values are in conflict with modern values and man's present lifestyles are not a strong re-enforcer of optimal well-being.

Ageing and ultimate death seem characteristic of all living organisms. Atherosclerosis and arteriosclerosis progressively decrease the tissue oxygen supply, and in some organs such as the brain, cells that die are not replaced. In other tissues, the cell constituents change with ageing; for example, cross-linkages develop between adjacent collagen fibrils, decreasing their elasticity and facilitating mechanical injury. In consequence, most biological functions show a progressive, age-related deterioration (Shepard, 1998).

Ageing involve the steady decline of organ function and body system thereby making individuals vulnerable to various diseases and illness. It was also described by Gavrilov (2002) as a summary term for a set of processes which contribute to health deterioration and ultimately to death with the passage of time. According to Gothelf (2008), ageing cannot be avoided but how fast people age varies from one person to another and depends on such factors as genetic make-up, environmental influences and lifestyle.

### **Statement of Problems**

The aged is an individual who is being brought to a state of ageing. Anne (1995) described the aged in terms of people who are not handicapped or atypical but suffer some form of disability which could be either spiritual or psychological and could also have health problems like low back pain, hypertension among others. Preserving muscle mass as people aged is important to maintain health, physical

strength, appearance and independence. Experts say people of all ages are capable of increasing muscle mass with an appropriate weight training programme and this appears to be accompanied by other metabolic benefits such as increased nutrient sensitivity and the prevention of Type II Diabetes Mellitus (Rennie, 2007).

Ross (2000) explained that the aged may suffer coronary heart disease (CHD), strokes, type II diabetes, obesity, hypertension, colorectal, cancer, osteo-arthritis, low back pain, weakness and headache and disabled body among others. In the word of Anderson (1998), aged men and women have signs and symptoms ranging from menopause, graying, coordination problems, osteoporosis, cancer, vision impairment hearing impairment and loss of wisdom.

Odetunde (2003) explained that from the time of birth the body undergoes physical, mental and social changes that affect the quality of individual life and it could be interesting for one to think of what life will be like as one moves through the life cycle.

Exercise by the aged is physical activities that strengthens the muscles of the elderly and allows them perform daily living tasks easier, with more energy and ultimately help them keep fit. Exercises are activities that involve variety of strength, flexibility, balance, and coordination. It can be either aerobic (with oxygen) or anaerobic (without oxygen). Exercise can be done inform of play, sports, recreation or therapy (Stephen, 2005).

According to the American Heart Association (2009), increased levels of physical activity are associated with reduced type II diabetes, colon cancer, depression and anxiety. Dawna (2010) explained that exercises are basically for strength, flexibility, balance and co-ordination, and to improve health conditions. Joshi (2007) posited that exercise is simply being physically activity. A physical activity makes an individual physically fit and healthy.

The world health report (2002) estimated that approximately 3 per cent of disease burden in developing countries is due to physical inactivity and that over 20 per cent of heart diseases and 10 per cent of stroke in developing countries is due to physical inactivity. Physical inactivity is one of the top ten leading causes of death and disability in the developed world. Blair (1992) summarized that physical activity is probably the "Best Buy" in public health.

There are two main kinds of exercise namely; aerobic exercise (with air) and anaerobic exercise (without air). These exercises differ in intensity, frequency and duration. Aerobic requires more frequency than anaerobic exercise.

### **Significance of Study**

Socio-economic status (SES) has a major impact on health (WHO, 2002; Adams & White, 2004; Sapolsky, 2005). There is a wealth of evidence that lower SES is associated with increased risks of cardiovascular, respiratory, rheumatic and psychiatric diseases; low birth-weight; infant mortality; and mortality from all causes (Sapolsky, 2005). Lifestyle factors such as smoking, physical activity and diet also increase the propensity to ageing-related diseases (WHO, 2002). SES has an impact on life expectancy as well as health. As ageing confers the greatest risk of death, a lower SES may diminish life expectancy not only by predisposing to ageing-related diseases, but also because it may influence the ageing process itself.

Irada (2003), explained that the health of the aged can be improved through exercise, recreation, rest and sleep, reduction of alcohol and tobacco, nutrition (good eating habits) positivity of self image (increasing self worth and esteem).

The aged have a lot of benefits when they exercise regularly. Some of these benefits are improved motor skills, fitness, muscle tone, bone strength and joint function.

Samuel (2000), however revealed that there are several benefits that exercise can have on the aged; these benefits include health benefits, social and emotional benefits. Rennie (2007) further emphasized that as part of a continuous restoration process, muscle tissue is simultaneously broken down and re-synthesized. There is some evidence that the rate of synthesis is decreased in the elderly, possibly due to an impaired response to proteins taken in food and therefore to the amino acids of which the protein is composed. This nutrient resistance may, in part, explain why muscle is gradually lost with ageing.

### **Methods & Materials**

This study was conducted in Ojo LGA of Lagos State, Nigeria. The 2006 census figure put the population of Lagos state at 9,015,781, out of which about 2,81,481 from Ojo LGA. The Ojo Local

Government is made up of 5 wards namely: Ward A, Ward B, ward C, Ward D and Ward E respectively. While wards A, B and C makes up the Upland areas, wards D and E consist of the riverine areas. A total sample size of 250 will be drawn from the selected wards in Ojo Local Government. But due to logistic problems, this study will concentrate on the 3 wards in the Upland areas. Ward A cover areas such as Idi – Orogbo, Awori, college, Ojo central, Ojo Jetty side, Franklas, etc. Ward B covers areas such as Ira, Ilaje, Tedi, Muwo, Agric, Barracks, Post service, Mile 10, etc. Ward C covers areas such as Alaba, Mosafejo – ilufe, Sabo, Ajangbadi, Jakande, Igbede New Site, etc. The sample size will be drawn using multi stage sampling technique. The stratified random sampling technique will be used to select the required sample in order to give every member of the population an equal chance of being selected and to increase the variability and also to ensure adequate representativeness. A proportionate sample will be drawn from each of the 3 wards and in each of these 3 wards chosen; the elderly will be purposively sampled. Questionnaire method will be administered to the selected elderly (250 of them). It will be further divided into ratio 90:90:70 in order to get desired results. This is based on the fact that Wards A and B have more streets as compared to Wards C.

Structured questionnaire method will be adopted for the collection of data and other relevant information for this study. The method of data analysis and presentation for this study will include chi square technique. It is important to note that both statistical and research analysis are quite interwoven such that one is the direct result of the other. However, frequency table will be adopted to analyze the relevant response in the questionnaire while chi square will be adopted to test the hypothesis of this study. A total of 250 questionnaires were distributed but a total of 242 were returned as success level.

## **Findings and Discussion**

### **Socio-Demographic Profile**

Information provided by 242 elderly men and women is analyzed in this study.

**Table 1**  
*Socio-Demographic Profile of Respondents*

<i>Variables</i>	<i>Frequency</i>	<i>Percentage</i>
<b>SEX</b>		
Male	125	46.6
Female	117	53.4
<b>Total</b>	242	100
<b>Last Birthday</b>		
60–64 years	47	17.5
65–69 years	64	23.9
70–74 years	76	28.4
75–79 years	33	12.3
80 and Above	22	8.2
<b>Total</b>	242	100
<b>Marital Status</b>		
Married	133	49.6
Divorced	36	13.4
Separated	25	9.3
Widowed/widower	48	17.9
<b>Total</b>	242	100
<b>Religious Affiliation</b>		
Islam	120	44.8
Christianity	115	42.9
African Traditional Religion	1	.4
Others	6	2.2
<b>Total</b>	242	100
<b>Ethnic Affiliation</b>		
Yoruba	154	57.5
Igbo	47	17.5
Hausa	37	13.8
Others	4	1.5
<b>Total</b>	242	100
<b>Educational Attainment</b>		
SSCE/WASCE	49	18.3
HND/BSC	147	54.9
NCE/OND	16	6.0
Others	30	11.2
<b>Total</b>	242	100

*Source:* Researcher's field survey, 2011.

### **Interpretation**

The above Table 1 shows that more than half of the sample population are males and almost one quarter of the remaining respondents are females. This implies the survey was able to capture more male elderly than females.

The next cadre of measurement captured the age of respondents as at their last birthdays, it was discovered that more than one-quarter of the respondents are between the ages 70–74 which shows a little fraction of the sample population are aged. Those within the age brackets 65–69 and 60–64 years represent the most active population as regards the elderly within Ojo Area but the survey captured only less than one tenth of the respondent. This implies more of the respondents were the less strong and inactive population.

Only four categories of marital status were observed from the sample survey. These are married, divorced, separated and widowed. It was discovered that almost more than half of the respondents are married. Others ranked below one-tenth, to which 25 out of 242 were separated as at the time of this survey. This shows more of the respondents are happily married with their families.

From the Table above it could be inferred that almost half of the respondents each were either Muslims or Christians which were more than three-quarter of the entire respondents. The remaining formed a minority interest group that constituted less than one-tenth of the respondents who worship traditional gods and lastly a minute fraction constituted other kinds of religion not captured.

The table also revealed the ethnic affiliation of the respondents and it was observed from the sample survey that more than half of the respondents belong to the Yoruba speaking tribes, one-fifth are from the Igbo speaking ethnicity which ranked the second highest ethnic group of respondents covered by the research survey. The least of the entire ethnic group captured were the Hausa tribes, which is due to the fact that the research was carried out in the western region.

Finally, the table above also shows the highest level of qualification of the sample survey. The table shows that more than half of the sample population have either HND/B.Sc certificate, which means more elders within Lagos have attended an institution of higher learning. One-fifth of the respondents are holders of WAEC certificate which implies that a little fraction of the respondents had no opportunity to attend higher institutions.

**Table 2**  
*Exercises, Health and Well-being of the Elderly*

<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>
<b>Nature of health challenges</b>		
Coronary heart disease	79	32.6
Respiratory disease	23	9.5
stroke	2	.8
Eye disease	10	4.2
diabetes	128	52.9
<b>Total</b>	<b>242</b>	<b>100</b>
<b>Do you exercise at all?</b>		
Yes	108	44.6
No	134	55.4
<b>Total</b>	<b>242</b>	<b>100</b>
<b>How often do you exercises?</b>		
Often	53	49.1
Very Often	7	6.5
Rarely	31	28.7
No Response	17	15.7
<b>Total</b>	<b>108</b>	<b>100</b>
<b>Do you think exercises improve well-being?</b>		
Yes	237	98.0
No	5	2.0
<b>Total</b>	<b>242</b>	<b>100</b>
<b>Any major health challenge?</b>		
Yes	174	72.0
No	68	28.0
<b>Total</b>	<b>242</b>	<b>100</b>
<b>Do you have enough resources for your care?</b>		
Yes	144	59.5
No	98	40.5
<b>Total</b>	<b>242</b>	<b>100</b>
<b>Who paid your medical bill?</b>		
self	92	38.0
Children	123	50.8
Spouse	15	6.2
others	12	5.0
<b>Total</b>	<b>242</b>	<b>100.0</b>

The study asked for the nature of health challenges among the respondents. About one-third of the respondents mentioned coronary heart diseases while about half of the respondents mentioned diabetes. The study went ahead to ask if the respondents do any form of exercises at all. About two-fifths said they do while the remaining replied they do not. At this point, the study sought to know among those that do exercises, how often. About half said often while more than one quarter said rarely. In fact, less than ten per cent said very often. When asked if exercises do bring improved well-being, virtually all the respondents replied in the affirmative. As a corollary to the above, they were asked if they have enough resources to surmount their health challenges. About three-fifths of the respondents said yes while remaining said no. finally, the respondents were asked who paid for their last medical expenses. About half of the respondents mentioned their children while less than two-fifths mentioned self.

### **Conclusion**

Conclusively, the impact of exercise on the health of the aged serves as a key stone in the field of controlling ageing and preventing diseases and illness during ageing process.

The aged suffer from coronary heart disease (CHD), Strokes, Type II diabetes, Obesity, Hypertension, colorectal cancer, Osteo-arthritis, Low back pain, Weakness and headaches. These diseases and illnesses can be controlled and prevented through exercise. For instance, Jogging, Brisk walking, Running on treadmill, Dancing and Riding on a bicycle ego meter.

### **Recommendations**

From the information gathered in regards to impact of exercise on the health status of the aged. The following recommendations were made:

1. The government should recruit more health workers and social workers for better improvement of the aged.
2. The general public should be advised to donate and channel their donations to welfare institution that are locally registered for the aged.
3. The upper class of the society [(VIP) very important persons] e.g., Sport persons, Philanthropist, Musician etc., should build recreation centers for the aged in the community.



4. People should encourage the aged around them to exercise.
5. Gymnasiums should be made cheaper so that people especially the aged can afford it.
6. The government and private bodies should create days in every month of the year for a walk, i.e., for the aged.
7. Effort must be made to create awareness in the community on the impact of the exercise of the aged and public health centers should have exercise and health section for the aged.
8. The federal government of Nigeria should play a greater role in ensuring that our country (Nigeria) should be a better place for the aged by creating recreation centers and more old people's home.

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## Disease Patterns and Care of Older People in Sri Lanka

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### ABSTRACT

*The paper is based on published literature, conference abstracts and research theses/dissertation for data on disease conditions and healthcare of the elderly in Sri Lanka. Much of the data was from a few relatively small studies. Both a decline in fertility and a decline in mortality (especially among women) accounts for population ageing in Sri Lanka. More than one third of the elderly report poor health status. Just over 50 per cent have at least one chronic medical problem, and rheumatological problems have a high prevalence. The majority of older people are independent, and dependency levels are low. Visual and hearing disability, and incontinence are a significant yet neglected problems. Very little data is available regarding falls in the elderly. There is a high prevalence of mental health problems among the elderly, in particular dementia and depression. The paucity of data on disease patterns and care of the elderly in the Sri Lankan population is striking; certain areas such as psycho-geriatric issues are covered better than others. Recommendations are made for future research. The development of geriatric care services in Sri Lanka is a definite need, and establishment of geriatric care training programmes will complement this.*

**Key Words:** Elderly, Older persons, Sri Lanka.

Sri Lanka has the fastest growing aged population in South East Asia. The percentage of the population above the age of 65 years was estimated to be 6.3 per cent in 2000 and is projected to rise to 21.3 per cent by 2050. (UN 2004) The number of people with disabilities increases dramatically with age (Brault *et al.*, 2005), and the dependency ratio at old age will rise from 9.3 per cent to 34.7 per cent; this projected transition in demographics will impose a burden for the younger working population to support the elderly. The healthcare needs of the older population is likely to increase substantially. This will result in a significant increase in the needs for geriatric care services. The country's policies must adapt to accommodate the extra burden on the economy and health sector.

In Sri Lanka, patients may seek care at tertiary hospitals without referral. There are no separate geriatric wards, and common medical wards house patients of all ages above 13 years. There are no special geriatric care services available in the health care system in Sri Lanka, at a hospital or community level. Geriatric medicine is not an established physician sub-specialty, and general internal medicine specialists are responsible for the care of older patients in the tertiary care setting. As a result, dedicated services for comprehensive geriatric assessment or follow up with rehabilitation of older people are virtually non-existent. Age concerned issues such as mobility, hearing and vision impairment, continence, cognitive impairment, and bereavement/isolation may not be adequately addressed; this may result in inadequate levels of care for older patients, recurrent admissions, and resultant poor patient satisfaction.

There is clearly a need to develop geriatric services in the country. The aim of this review was to identify the current status of data from Sri Lanka on: mechanisms of population ageing in Sri Lanka; disease patterns, risk factors and management issues specific to this age group.

### Methods

The authors used multiple search methods to identify studies and surveys relevant to the elderly population in Sri Lanka. Information was gathered from the following sources:

1. Medline for publications with the key words 'elderly', 'health care' and 'Sri Lanka' 1960–June 2011.

2. Abstracts at local/international scientific sessions.
3. PhDs, and other postgraduate research degree theses/dissertations.
4. Bulletins and reports.

Data on care for the elderly population of Sri Lanka were gathered through the Ministry of Healthcare and Nutrition and Help Age Sri Lanka. All abstracts were read independently by the authors, and relevant papers were identified for review of the full papers.

## **Results**

### *Definition of Elderly*

The definition of elderly is variable. In Sri Lanka, age 60 years and above is considered the demarcation age in identifying the elderly population, since the most common mandatory retirement age falls between the ages 55 and 60 years (Siddhisena, 2004).

All community or hospital based studies considered in this article have used 60 years as the cutoff age except for three studies (de Silva *et al.*, 2001; de Silva *et al.*, 2003; and Weerasuriya and Jayasinghe, 2005), in which 65 years was the cutoff.

### *Mechanisms of Population Ageing*

The two main mechanisms for population ageing are decreased fertility and increased life expectancy. Migration is a less important factor. We identified four publications which provided information on the mechanism of population ageing in Sri Lanka (Siddhisena and Ratnayake, 1998; Lekamwasan, 1999; Abey Koon, 2000 and Dissanyake and Kalutanthri, 2004).

*Decline in fertility rate:* Sri Lanka had a fertility rate of 1.99 children born per woman in 2009, and this has declined progressively over the past half century, from 5.35 children born per woman in 1960 (Sheet, 2009). Sri Lanka ranks 131st among all countries (in descending order); fertility rates are considerably low when compared with most developing countries, and are close to that of most developed countries.

*Reduction in mortality with resultant increase in life expectancy:* In Sri Lanka, life expectancy at birth has risen from 32.7 years for males and 30.7 years for females in the 1920s, to 68.1 years for males and 76.6 years for females in 2000–2002 (De Silva, 2008), and is projected to rise

slightly over the next decade. Sri Lanka has the highest life expectancy in South Asia. Life expectancy is significantly higher among Sri Lankan women compared to men, and this discrepancy is the highest in the Asian region. Females in Sri Lanka have lower mortality during reproductive ages. This is in contrast to other South Asian countries where women of childbearing age have high mortality rates. The maternal mortality rate in Sri Lanka has declined from 16,530 per 1,00,000 live births in 1945 to a spectacular 4.7 per 1,00,000 live births in 2001. This is attributed to improved health care services targeting maternal health as well as other factors such as late age of marriage, improved nutritional status of mothers, increased use of contraceptives and birth spacing, and improved female education. On the other hand, mortality rates of males have not shown such a significant decrease, and it is postulated that this is because of increased deaths among males due to suicides, homicides, road traffic accidents, and war casualties. The gain in life expectancy before 1950 was mostly due to reductions in deaths at young ages. However, during the second half of the last century, life expectancy at older ages has increased considerably. In the 1920s, a man or woman reaching the age of 60 years would be expected to live for 10–11 years more. However, by 2000–2002, men and women reaching the age of 60 years would be expected to live for 17.2 years and 21.3 years more, respectively.

*Migration:* There is no data on this, although it would be presumed that the efflux people seeking employment overseas has had some impact.

#### *Disease Patterns of the Elderly in Sri Lanka*

Overall, data on disease patterns and care of elderly patients in Sri Lanka were very limited. We identified five community based studies which looked at general health aspects among the elderly population in Sri Lanka (Lokubalasoorya, 1999; Balasuriya and Gnanissara 2001; Balasuriya, 2001; Gamage, 2004 and Ostbye *et al.*, 2009). Two further hospital based studies were identified (Weerasuriya and Jayasinghe, 2005 and Petkova *et al.*, 2010) The studies deal with various dimensions of health among the elderly, such as self reported health status, functional status, chronic health problems, defects, mental disabilities and on nutritional status; and these are detailed below. Apart from these, we identified several small studies focusing on specific health

aspects among the elderly, such as vision, oral health, mental health, breast examination and anal incontinence.

### *Self Reported Health Status*

Self-rated health (SRH) is a frequently used summary measure of health. It is an important longitudinal predictor of future health outcomes including mortality, morbidity, functional ability, and healthcare utilization (Idler, 1997; Bath, 1999; Idler and Davis, 2000; De Salva *et al.*, 2006). Two studies provided data on SRH among Sri Lankan older patients. (Balasuriya, 2001; Ostbye *et al.*, 2009) (Table 1). In these two studies, just 27.18 per cent and 33.69 per cent of elderly patients respectively reported their health status as fair or better. In comparison, this figure is 7.81 per cent in India (Indrani, 2003) and 68.86 per cent in United States (Ostbye T. *et al.*, 2006). More than one third of Sri Lankan elderly patients in these studies report poor health status based on SRH.

**Table 1**  
*Self-rated Health Status*

<i>Study</i>	<i>Excellent</i>	<i>Very Good</i>	<i>Good</i>	<i>Fair</i>	<i>Poor</i>
Balasuriya 2001	13.16%	—	14.02%	31.79%	41.03%
Truls Ostbye et al., 2006	1.62%	7.49%	24.58%	36.15%	30.16%

### *Chronic Medical Conditions*

Rheumatological complaints the were commonest reported health problem, with a prevalence of 62 per cent and 44.6 per cent respectively (Lokubalasoorya, 1999; Balasoorya, 2001). Inclusion of backache in the list of rheumatological problems may be the reason for the reported higher prevalence in the first study. Weerasuriya and Jayasinghe (2005) report a much lower percentage of rheumatological problems (29%), probably because this study reported mainly the presence or absence of osteoarthritis of the knee.

Balasuriya Granissara (2001) reported that 53.8 per cent had at least one chronic medical condition (defined as those on medications for any illness for more than 3 months continuously). Hypertension, heart disease, diabetes and lung diseases including asthma are the common diseases to affect the elderly (Table 2).

**Table 2**  
*Prevalence of Chronic Medical Conditions*

	<i>Lokubala-sooriya 1999</i>	<i>Balasureiya 2001</i>	<i>Weerasuriya 2003</i>	<i>Rodrigo 2010</i>
Arthritis/ Rheumatism	44.6% (Osteo arthritis)	62% (Includes back ache)	29% (osteoarthritis of knee)	2%
Hypertension	25%	17.6%	54%	16%
Heart disease	15.8%	5%	30% (IHD)	27%
Lung disease/ Asthma	7.7%	15%	12%	16%
Diabetes Mellitus	9.5%	7%	27%	17%
Cancer	0.5%	NR	NR	NR
Stoke/ Paralysis	2.1%	7%	NR	3%

NR-Not reported.

### **Functional Status**

Data was available from six studies on the functional status of the older population, such as activities of daily living, bladder/bowel control and falls (Balasureiya, 2001; Balasureiya and Gnanissara, 2001; Gamage, 2004; Weerasuriya and Jayasinghe, 2005; Optbye *et al.*, 2009; and Petkova *et al.*, 2010).

Eating, dressing, toileting, grooming, transferring between bed and chair and bathing comprise the Personal/Physical activities of Daily Living (PADL). Components evaluated to assess Instrumental Activities of daily Living (IADL) varied substantially. Therefore, only the ability to go out using public transport, going to shop, do money transactions correctly and taking medications were considered for comparison with regards to IADL. The data on PADL and IADL are shown in Tables 3 and 4. Of PADL, bathing was the single most important activity which needed assistance, while of IADL, going to the shop and doing money transactions are the two activities that older people were most dependent for. The four community based studies showed independence ratings of 67–83 per cent in personal activities of daily living. Total dependency was relatively low (1% & 3.8%).



**Table 3**  
*Independence in Personal Activities of Daily Living (PADL)*

	<i>Balauriya</i> 2001	<i>Balauriya,</i> <i>Gnanissara</i> 2001	<i>Gamage D.G</i> 2004	<i>Truls Ostbye</i> <i>et al.,</i> 2006
Eating with out help	91.8%	Assessed; but data not available	94.7%	95.3%
Dressing with out help	93.3%		93.4%	93.9%
Toileting with out help	—		90.4%	91.3%
Grooming with out help	95.2%		93.2%	—
Transference between bed and chair	96.0%	94.6%	93.2%	—
Bathing with out help	77.4%	78.9%	88.1%	84.1%
Independent in all PADL	67.8%	74%	76.9%	83.3%
Dependent in all PADL	1.0%	3.8%	—	—

**Table 4**  
*Independence in Instrumental Activities of Daily Living (IADL)*

	<i>Balauriya</i> 2001	<i>Balauriya,</i> <i>Gnanissara</i> 2001	<i>Gamage D.G</i> 2004	<i>Truls Ostbye</i> <i>et al.,</i> 2006
Go out using public transport	89.06%	Assessed; data not available	62.0%	—
Going to shop	—	—	68.4%	80.2%
Do money transactions correctly	78.98%	Assessed; data not available	49.0%	86.5%
Taking medications independently	86.16%	—	76.9%	87.0%
Independent in all	—	62.4%	46.4%	62.4%
Totally dependant		18.3%	—	—

Weerasuriya and Jayasnghe (2005) used Barthel's Index to assess the status of basic activities of daily living (BADL) and found that 19.8

per cent required assistance in 5 or more BADL, but 51.6 per cent were independent with regard to all BADL. Rodrigo *et al.*, (Rodrigo *et al.*, 2010a and 2010b) showed that 9 per cent of older patients had severe dependence, and 14 per cent were moderately dependent; 77 per cent were independent or had minimal dependence.

Problems with bladder control occur in 11.45 per cent and 6.1 per cent. (Balasuriya, 2001; Balasuriya and Gnanissara, 2001). These two studies also report problems in bowel control to be around 4.8 per cent and 1.9 per cent respectively. However, another study of hospitalized older individuals (age range 50–91 years) reported a much higher prevalence of 8.36 per cent (Premchandra *et al.*, 2008). In this study 347 patients admitted to the National Hospital of Sri Lanka with non-gastrointestinal problems were evaluated for anal incontinence. The mean age of the population was 65 years. Of the 29 patients with anal incontinence, 79 per cent reported incontinence for flatus and 31 per cent, 13 per cent and 3.4 per cent reported incontinence for liquid faeces, solid faeces and to all three respectively.

Falls are common in the elderly and can result in serious injury. Data on this is limited, though. Only one study (Weerasuriya and Jayasinghe, 2005) assessed the tendency to fall among older people. The authors used the timed “Up and Go” test (Podsiadlo, 1991) for the assessment and found that 57.6 per cent could not, or took longer than 30 seconds, to perform the test. Moreover they reported that 23.3 per cent of the population had a history of unprovoked falls during the proceeding year.

### *Physical Defects*

The prevalence of cataract is set to increase rapidly in Sri Lanka over the next 30 years, in keeping with the rapidly aging population (Abeykoon, 2000). Nanayakkara (2009) attempted to establish the prevalence of cataract from a cross sectional sample of 614 older people. Sixty eight per cent of those aged 60 and older had some visual impairment; 52 per cent were visually impaired and 16 per cent were blind. Cataract was the commonest eye problem in older people, with a prevalence of 56 per cent. The majority (78.7%) had cataract in both eyes and only 15 per cent with cataract had undergone surgery. It was also shown that the quality of life of older people with cataract was considerably lower, because of poor general health, problems in

general vision and role difficulties, near vision activities, social functioning and color vision.

Data on hearing impairment among the elderly is difficult to interpret, as the assessment methodology used in the different studies was variable. In one study (Balasuriya, 2001) individuals were asked to repeat three words spoken words; those who could repeat all three words correctly were considered to have no hearing impairment; 34.87 per cent were found to have hearing impairment. Ostbye *et al.*, (2009) in contrast assessed it by asking "Can you hear a person at his or her normal volume?" and those responded "easily" were categorized as having no hearing difficulty; they reported hearing impairment in 26.25 per cent. Weerasuriya and Jayasinghe (2005) reported a much lower prevalence of hearing impairment of 8.3 per cent among hospitalized elderly persons; however they did not specify how it was assessed.

Several studies had been done on dental health among the elderly in Sri Lanka. One study (Ekanayake and Perera, 2005) assessed the perceived need for dental care among dentate older individuals (n=171, age = > 60). Fifty three per cent perceived a need for dentures. Painful aching in the mouth, difficulty in eating, and unsatisfactory diet due to problems with teeth, mouth or dentures were shown to be the factors associated with a perceived need for dental care. Another study assessed the prevalence and factors associated with root surface caries in older individuals (Kularatne and Ekanayake, 2007). A total of 600 urban subjects aged 60 years and above were assessed. The prevalence of root surface caries was 89.7 per cent. Chewing betel, age, the number of retained teeth and the number of root surfaces with recession emerged as significant predictors of root caries.

A total of 630 subjects aged 60 years and over were assessed in another study aimed at determining tooth loss, wearing of dentures and associated factors (Pallegedara and Ekanayake, 2005). Only 11 subjects had all 32 teeth and 17 per cent were edentulous. In the edentate group, the overall prevalence of oral impacts was significantly higher in non-denture wearers (53%) compared to denture wearers (32%).

### ***Mental Health Problems***

Mental disability among elderly persons is also higher compared to the general population in Sri Lanka (Balasuriya, 2001; De Silva *et al.*,

2003; Weerasuriya and Jayasinghe, 2005; Malhotra *et al.*, 2009; Ostbye *et al.*, 2009) (Table 8) Four studies provided data on the prevalence of cognitive impairment among older patients in Sri Lanka. These studies give significantly variable results, probably due to inequalities in the tools used to assess cognitive function. While Balasuriya (2001) in his study (15) reports a 14.5 per cent prevalence of cognitive impairment using the "Abbreviated Mental Test" (Hodkinson, 1972), Weerasuriya and Jayasinghe (2005) found a much higher prevalence of 73 per cent. In the latter the investigators used the "3 item 5 min recall test" (Siu, 1991) as a screening method for dementia, but confirmation of the diagnosis of dementia with the use of a standard tool was not performed.

Two studies have used Mini-Mental State Examination (MMSE) for diagnosis of dementia (De Silva, *et al.*, 2003; Ostbye *et al.*, 2009). In the Sri Lanka Ageing Survey 2006 (SLAS), researchers used a condensed locally adapted form of the Mini-Mental State Examination which included orientation to time and place, calculation, recall, language (naming) and a three step task (Ostbye *et al.*, 2009). For comparability with MMSE, this scale was transformed so that the maximum possible score was also 30. They reported 16.24 per cent prevalence of elderly people having a score less than 17, which they defined as the cutoff point for dementia. A more systematic study has been conducted in 2003. This study was conducted in two phases. In phase I, 703 subjects aged  $\geq 65$  years from the study area were screened for cognitive impairment using a Sinhalese translation of Mini Mental State Examination. Subjects scoring  $\leq 17$  were regarded to have suspected dementia. All subjects who screened positive in phase I were included in phase II for detailed evaluation for dementia according DSM IV and NINCDS-ADRDA criteria which included structured neuropsychiatric assessment, laboratory investigations, an axial CT scan of the brain and an informant interview. They found that 42 subjects (5.97%) screened positive in phase I and 28 subjects were diagnosed as having dementia, giving an overall prevalence rate of 3.98 per cent (95% Confidence Intervals (CI) = 2.6–5.7%). Of these, 20 (71.4%) had probable Alzheimer's disease (AD), four had vascular dementia (14.3%), two had mixed (vascular and AD) dementia (7.1%), one had Lewy body dementia, and one had dementia due to syphilis. Greater age, illiteracy and female gender were associated with a higher prevalence of dementia.

Four studies provided prevalence data about depression in older patients (Balasuriya, 2001; Weerasuriya and Jayasinghe, 2005; Ostbye *et al.*, 2009). All of these studies have used the Geriatric Depression Scale (GDS) for assessment. Weerasuriya and Jayasinghe, (2005) in their hospital based study used the 5 item GDS for screening and found 40 per cent of there study population to be depressed. Similarly, Rodrigo *et al.*, (2010b) using a the 15 item GDS, showed the prevalence of depression among hospital admitted patients to be around 35 per cent. In the other two studies which were community based, Balasuriya, (2001) and Ostbye *et al.*, (2009) report a prevalence of depression (score >6/15) of 12.14 per cent and 27.8 per cent respectively (GDS score >6/15).

#### Nutritional Status

The Body Mass Index alone is unsuitable to assess nutritional status in older people. More accurate and validated scales such as the Mini Nutritional Assessment have been developed for this propose. Nonetheless, the only three studies reporting on nutritional status of elders use BMI values alone. The BMI cutoff between normality and under-nutrition differ in the studies (18.5 & 20 kg/m<sup>2</sup>), but still approximately one third of the elderly population have low BMI values (Table 5). Weerasuriya and Jayasinghe, (2005) in their hospital based study show a statistically significant difference in mean BMI values in men and women (18 & 21.9 kg/m<sup>2</sup> respectively) suggesting that elderly women are better nourished.

**Table 5**  
*Nutritional Status Among Elders*

	<i>Lokubalasooriya 1999</i>	<i>Balasuriya 2001</i>	<i>Weerasuriya, Jayasinghe 2003</i>
Obese	12.8 (BMI >25)	16.24 (BMI >25)	BMI mean
Normal	54.8 (BMI 18.5–24.9)	49.91 (BMI 20–24.9)	Male – 18
Under-nourished	32.5 (BMI <18.5)	33.85 (BMI <20)	Female 21.9

#### Elder Abuse

Elder abuse is also an important concern. Geriatricians often have to “treat” the caregivers and sometimes, the family, rather than just the older patient. There is one published paper (Paranitharan *et al.*, 2009) highlighting this important aspect, although no data on the problem is

presented. There is currently neither research nor active social dialogue on elder abuse in Sri Lanka. However, in 2000, the Government of Sri Lanka passed an act titled "Protection of the Rights of Elders Act, No 9 of 2000". This act suggests adequate training at undergraduate and postgraduate levels in order to make all medical professionals to be competent in identifying and managing elder abuse.

### **Conclusion**

Published data on disease patterns and care of the elderly in Sri Lanka are considerably limited. The majority of studies performed are relatively small, except for some community-based studies. One of the important limitations is the fact that different scales and parameters have been used in the different studies; this inevitably leads to the data being difficult to compare with those from the rest of the world. Nonetheless, in areas of mental health, attempts have been made to standardize tools of measurement.

Information on health problems in the elderly in Sri Lanka are patchy, with some areas such as mental health studied better than others. Information on health care systems and support services for geriatric care are virtually non-existent. The impact of conditions like suicides, homicides, war casualties and internal displacement following conflict, as well as that of infectious diseases such as malaria, dengue, leptospirosis, and also malignancy, are non-existent. Further studies in these areas are clearly needed. Research on the prevalence of polypharmacy, drug toxicity, and their impact on the well-being of the elderly is nonexistent.

We recommend further research in particular in the following areas:

1. Epidemiological research describing the differences between disease patterns in the elderly compared to the younger population;
2. Development and validation of scoring system for disease conditions and levels of disability appropriate to the local setting;
3. Health systems research aimed at developing strategies of providing the best possible care for older people, building on the existing strengths in the healthcare system;
4. Research into the impact of urbanization, conflict, internal displacement, migration, suicides, poisoning, emerging infectious diseases, malignancy, and natural disasters on the elderly;

5. Research into the impact of polypharmacy and drug toxicity among elderly patients being treated for multiple comorbidities.

The social care structure for older patients is clearly different in Sri Lanka from that in developed countries. Many older people live in extended families, though this is set to change with urbanization and migration. Care models developed for the west are not suitable for Sri Lanka, and such care models must essentially take into account these differences. By way of strengths, Sri Lanka has a strong and well developed public health programme, in particular an excellent maternal and child care programme. It would seem logical to use these programs as a backbone to improving geriatric care at primary and tertiary care as well as a community level.

Postgraduate training in care of the elderly is a much needed area in Sri Lanka, in view of the aging population and changing social structure in the country. Modeling these programs on western programs is clearly unsuitable. Data is still considerably lacking to make clear recommendations on the structure of such training programs, and further evidence, as discussed above, would be essential towards developing robust systems which would truly benefit the elderly. The Postgraduate Institute of Medicine, University of Colombo, which is the specialist medical training institute, is in the process of commencing a Diploma Programme in Geriatric Medicine, which, it is hoped, will evolve into a fully developed specialist geriatric training programme in the future.

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## Patterns of Intergenerational Relations in Indian Family

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### ABSTRACT

*The present study is an attempt to explore the patterns of intergenerational relations in Indian family, and the role of demographic variable (Age, Income, and Location) to determine the different patterns of intergenerational relations. Narrative was the method used in the study as a source of data collection and narrative were analyzed through Structure Model Analysis. Results reveal that the three patterns of intergenerational relations exist in the society, i.e., Solidarity, Ambivalence and Conflict. The majority of the respondents had experienced solidarity followed by ambivalence and conflict. Higher proportion of rural sample had solidarity pattern of intergenerational relation followed by ambivalence and conflict. In urban sample the experience of solidarity is more followed by conflict and ambivalence. Higher socio-economic status family shows more solidarity than the lower socio-economic status family. The middle socio-economic status family have revealed mostly ambivalent pattern of intergenerational relation and conflict type of intergenerational relation are observed in lower socio-economic status. Similar trend of experience was found in younger and older generations and male and female respondents.*

**Key Word:** Intergenerational Solidarity, Intergenerational Ambivalence, Intergenerational Conflict, Rural/Urban, Socioeconomic Class.

Intergenerational relations studies came to prominence with the emergence of the area of social ageing and with the establishment of gerontology as a discipline in the 1940's. The early studies were focused mainly on elderly status in family, the problems of old age and family functions in relation to elderly status.

With the emergence of Intergenerational relations studies, three major approaches were used to understand the phenomena of Intergenerational relations.

*Generation Gap:* The major objective of the studies was to study the generation gap depending on social and economic changes, and differences in values and attitudes (Manheim 1952; Eistenstadts 1956; Davis 1971).

*Across Generation:* In this approach, the major emphasis was on perception, in which attitudes of generations towards each other is examined (Brewer, *et al.*, 1981; Bell).

*Intergenerational Relations:* This approach came to light in the 1990's but inquiry began with the establishment of the area of gerontology in 1942 where efforts tried to explain the behavioural and perceptual manifestation of the generation gap. Differences on matter of values, need, lifestyle and attitude are observed between generations and how financial difficulty and parent child dependency during middle and adult hood leads to conflict between generations. (Fengler & Wood, 1972; Laursen, *et al.*, 1998, Lee *et al.*, 2000) Beside these there are other factors which are also sources of conflict, i.e., power, resource, justice and social identity (Sherif & Sherif, 1953; Simmel, 1950). Other scholars enumerate greater autonomy, independence and personal identity as potential sources of conflict. (Laursen, *et al.*, 1998; Fuligni, 1998; Greenberg & Chain, 1996). While still others mark cultural gap like parenting style as the cause of intergenerational conflict (Laursen & Collins, 1994).

Besides, other researchers have also emphasized solidarity in the pattern of intergenerational relations and not only conflict. It was in the mid 1980's that the emphasis shifted to solidarity. Intergenerational solidarity is a fluid concept that one associates to life course events. Intergenerational solidarity refers to positive interaction between generations, to circumstances defined by norms of reciprocity and their acceptance and practice in accordance to individual need and social support/financial support, complimentary

of role expectation based relations among family members (Bengtson *et al.*, 2002; Legors, 2002; Merz, 2005).

Robert & Bengtson (1991) explain solidarity on the basis of six elements, i.e. Associational solidarity (Pattern of interaction between family members), Affectual solidarity (positive sentiments held about the member and degree of reciprocity), Consensual solidarity (agreement of values and attitude and belief among family member), Functional solidarity (help and exchange of resources), Normative solidarity (fulfillment of familial obligation, role and responsibility), Structural solidarity (geographical proximity of family member). On the fulfillment of these conditions, generations experience solidarity. Intergenerational solidarity within family includes whole range of domestic, affective and financial service between them.

But in late 1990's, there was again a shift in the emphasis of the studies, as now the belief was that in relationships both solidarity and conflict are integral and that such type of relationship exists and were termed ambivalence type of relationship where both love and hate experiences co-exist. The objective of the study was to understand the complexity of relationship where love and hate both feelings exist (Luscher & Pillmer, 1998). In ambivalent pattern of intergenerational relation manifestation, both the role partners (father & Son) have conflicting role expectations, lack of clarity in roles, presence of both positive and negative feelings and such coexisting feelings play a crucial role in determining ambivalence pattern of relationship (Thompson & Holmes, 1996).

### **Intergenerational Relations in India**

In India, Intergenerational relations are represented by the works of Sinha, 1972; Gangrade, 1975; Rath, 1971; where they have tried to understand the phenomena of generation gap with the differences on values and attitudes between generations. Rath (1971) in his study found the older generation to have a positive attitude towards religion and negative attitude towards science whereas for the younger generation it is vice-versa. The younger and older generations differ significantly on the meaning given to god and religion (Mishra and Prasad, 1978). Younger and older peoples' perceptions towards old age reveal a pre-dominance of negative attitudes and beliefs indicating minority group position for the older people. Though differences were not only in matter of attitudes, other factors like future, financial

insecurity, perception of the problem, role activity and status of elderly in the family too lead to conflict in the relationships (Prakash, 1996). Besides, the literature also suggests that if the generations shared values norms and cultural traditions, i.e. (manifestations of shared values & norms). Grandparents provide care to grand children in financial constrains, grandmothers help bring up the grand children, they had higher social adjustment and were willing to take up child care activity, and such elderly who participate in family processes and society experience Solidarity type of relationship and satisfaction (Chaddha & Mongia, 1997; Chaddha & Kolt, 2004; Panda, 2004; Sonar & Prasad, 2004).

Beside this another aspect of the study is to see the interaction pattern generational relations and role of demographic variable like location (rural/urban), education on Intergenerational relations. In the study of intergenerational support it was found that intergenerational support is less common in urban areas than rural locations. Intergenerational gap was more pronounced in urban families between older and younger generation than in the rural families (Martin, 1990; Mishra & Tiwari, 1980, Bhingradiya & Kamla, 1997). In context of education, Vermani and Sharma (1979) found that younger generation carries negative attitudes towards older generation. These negative attitudes are further strengthened among young generation respondent because they have higher level of education, thus negative attitudes towards the older generation increase with increasing education levels. However, Bhingradiya & Kamala (1997) contend that Education and modernization reduce the intergenerational problem within the rural family.

The existing literature thus shows that the family interaction process, generational role and responsibility are the determinants of the relationship. The role of demographic variables (age: older/younger; Class: High Middle and low class; location: rural/urban; Gender: male/female) is still an open question to enquire. Family interaction is guided by the demographic variable. Thus, the objectives of the present study were:

1. To identify the influencing factors of Intergenerational relations.
2. To see the pattern of intergenerational relations and role of demographic variable.

## **Method**

*Sample:* In all, 185 participants from 48 families were selected. The sample consisted of father-son, mother-in-law and daughter-in-law. The sample covered participants from rural as well as urban housing, both sexes; males as well as females, participants from different socio-economic status (high class, middle class, low class) and differing age groups; older/younger generation. The mean age of younger generation respondents was: for males 30.04 years for and female 27.54 years. Similarly the mean age for older generation was: males 72 years and females 52 years. Educational profile of respondents: in urban areas (Illiterate 24.4%, Secondary school 11.1%, High School 14.4%, Undergraduation 20.0%, Graduation 14.4%, higher studies 10.0%), where as in rural areas (illiterate 18.9%, Secondary School 18.9%, High school 6.3%, Undergraduate 31.6%, post graduation 10.4%, higher studies 3.2%).

Over all in the sample, 50 per cent respondents belonged to urban locations (50% male and 50% female) and same pattern in rural area. In urban area, 16.7 per cent belonged to high class, 17.29 per cent to middle class and 17.29 per cent belonged to lower class where as in rural area 15.13 per cent belonging to upper class, 16.21 per cent middle class and 17.29 per cent lower class.

*Location:* Data were collected from Gorakhpur city and Reotipur village located in Uttar Pradesh, Northern Part of India.

*Measure:* This paper is a part of larger study "A Social Psychological study of Patterns of intergenerational relations: Context of Priority of values" and the major objectives of the study were to examine the patterns of intergenerational relations and to see the psycho-social processes of intergenerational relations. To study these objectives, narrative analysis as a method of research was used, respondents were requested to narrate his/her experiences on the following issues and were probed continuously in the processes of the interview. For further enquiry or any confusion respondents were revisited.

- Description about the family members.
- About his/her behaviour and occupation.
- What are the differences and similarities the respondent perceived with his next generation? With examples of behaviour.

- What is the behavioural outcome of this relationship (tension or conflict or harmony) and how the respondents coped with these situations? Please mention personal experiences.
- Who takes the decision in the family? Does any kind of conflict arise in the process of decision-making? If so how the respondents resolve this conflict (with experienced examples)?

**Some issues were probed which were especially related to women:**

- What are the differences and similarities in behavioural pattern between the place of origin and the husband's house?
- Who looks after the children and prepares them for school?

### *Procedure*

The aim of the survey was to understand the nature of intergenerational relations in society. For this purpose Gorakhpur city was selected as urban location and Reotipur village in Ghazipur district as rural location. In the process of sample selection purposive sampling method was used for urban location and purposive random sampling method was used in rural areas. In urban areas interviewer introduced himself but in rural areas interviewer was introduced by another village member as a research scholar and gave a brief introduction about the purpose of the study. In rural areas and urban poor people, interviewer was often mistaken as officials of some government agency. This misperception was corrected by explaining to them that survey was purely academic in nature and not affiliated to any NGO or government organization. They were assured that their responses would remain confidential and by participating in the survey they would not be harmed in any manner. It was also explained that they would not receive any tangible benefits from the study. The interview was started only after establishing adequate rapport with them. Some respondents were illiterate. The survey was conducted personally and in the language most preferred by the respondent, which was Hindi in almost all cases. At first they were asked about the demographic information and after that they were asked to narrate their experiences of intergenerational relations (stressful event to pleasurable events). Approximately two to three or three and half hours were spent in one interview on one individual. After completing the interview the respondents were thanked for their kind cooperation in the study.



### **Analysis of Data**

Narratives organize a sequence of events into a whole so that the significance of each event can be understood through its relation to that whole. Narratives convey the meaning of events. The simplest definition of narrative, and one that has been traced back to Aristotle in his *Politics*, is that narrative is 'a story with a beginning, middle and an end' (Chatman, 1978; Leitech, 1986; Martin, 1986). Labov and Waletzky (1967) stated that narrative provides a method of recapitulating past experiences by matching a verbal sequences of clauses to the sequence of events that actually occurred. Narrative is composed of a sequence of actions such as a narrative abnormal which may be considered as empty or pointless narrative. They describe fully formed narratives as having six separate elements: Abstract, Orientation, Complicating Action, Evaluation, Resolution, Coda

There are six elements of this kind of analysis: Abstracts (a summary of the subject of the narrative), Orientation (time place, situation, participant), Complicating action (what actually happened), the evaluation (the meaning and significance of action), the resolution (what finally happened), Coda (which returns the perspective to the present). On the basis of these elements, they try to understand the structure of narrative and how the elements are functioning and over all process called structure model analysis.

For the analysis, the study has primarily relied on the Structure Model narrative analysis method which permits in understanding the ongoing process in tandem with an interactive process of data collection and analysis. Structure model analysis begins with finding out what factors influence the situation and how they work, within the research situation. The objective was to find out lived experience and behavioural pattern of the interacting people in both genders (male and female) by unstructured question pattern related to family life. Our task was to understand which type of relationships the participants experience and what are the psychological factor and processes working between the relations. How these relations affect the well-being? In the process of analysis, first narratives were abstracted and then the narratives were arranged in a structure. Then we went through the abstracts and arranged the statements in structure told by the respondents in a small form of process. The second step was orientation, i.e., what is the context of respondents' experiences or

behaviour in combination with what behaviour or action happened then and what happened next. Third step was evaluation, i.e., evaluating meaning and significance of the action (what respondent feel or experience). In fourth step, i.e., resolutions, finally what happened, i.e., coping pattern of how the individual handles the situation and cope up with situation. Then, finally coda was done to see overall which type of relationship they experience. After analyzing their experience in terms of Solidarity, Ambivalence and Conflict, the number of respondents showing solidarity, conflict and Ambivalence was counted and the percentage was drawn with reference to different block (age, gender, class, and location).

### Result

The objectives of study were to identify the influencing factor of intergenerational relations, and to see the pattern of intergenerational relations in reference to demographic variables. After analyzing the narratives the issues generations interacted upon were identified. Whether there were similarities or differences in these issues, these were the factors influencing the pattern of intergenerational relations.

**Table 1**  
*Influencing Factor of Intergenerational Relations*

<i>S. No.</i>	<i>Categories</i>	<i>Operational Definition</i>
1.	Good-	Happy and satisfied with relations
2.	O. K. (Thik Hai)	Low intensity of Satisfaction
3.	So-So (Thik hi Hai, Chal raha Hai)	Not satisfied with Relations
4.	Individualism vs. Collectivism	Individualism refers to priority for self and own family (wife, son, daughter etc.) concerns. Collectivism refers to priority given to all family (brother, sister, Father- Mother, uncle aunty, etc.) member living in the household than to the individual.
5.	Traditional or older values	Pattern of behaviour and values that facilitate the continuity of our customs and rituals like in-laws following religious norms, showing respect towards older generations, Ghunghat, serving soil, etc are included in traditional values.

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6.	Daily routines	Pattern of every day habits associated with sleeping, eating, watching late night T.V., spending free times within or outside home.
7.	Household Work	Refers to daily household activities performed by women, i.e., making breakfast, preparing the school going children, etc.
8.	Occupational Preferences	Preference of occupations out of Agriculture, service (government/private) business, profession etc.
9.	Security vs. Risk Taking	Security refers to a sense of safety, confidence& freedom from apprehension (i.e. government job is secured). Risk taking refers to a pattern, which may be motivated by need or desire to prove on self (i.e. preferences for private job and business)
10.	Consumption vs. saving	Consumption refers to the act of obtaining and using goods, services, new technology, money and resources for the enhancement of status in the society. Saving of resources for future use.
11.	Child rearing Practices	The pattern of child rearing practices adopted by the members in the family like refraining from the use of corporal punishment, teaching the child by the members of the family themselves, etc.
12.	Life Style	The general behaviour pattern of individual as expressed in terms of food habits (veg. - nonveg., making food with onion & garlic), dress pattern (sari, salwar kurta) use of cosmetic (soap, detergent, mitti, etc.) and physical looks (hair cut, etc.).
13.	Appropriate behaviour	Behaviour that is normatively expected one, like restraining consumption of alcohol in the presence of elders and also not abusing family members outside the house.
14.	Favoritism	Showing biasness towards a particular family member
15.	Unpredictable behaviour	Refers to the behaviour that keeps on changing frequently i.e. change of moods,
16.	Differences in respect pattern	Changes in the ways of younger generation of women expressing their respect to their elderly i.e. use of ghunghat (veil of head), daughter in-laws not appearing in front of their father in laws traditionally, but now they don't mind to face them.
17.	Education vs. Income	Refers to variations in priority given to the possible pursuit of income or education by both the generations.
18.	Migration	Moving towards urban places in search of jobs and livelihood
19.	Differences in role expectancy	As daughter in laws, the older generation experienced greater pressure of expectations from their mother-in-laws. But now the younger generation daughter-in-laws fail to meet even the bare minimum.

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20.	Household Skill	To manage the daily household activities some skills like cleaning the rice, sieving the flour, cooking meals are required specifically for women.
21.	Normative process	Refers to the preferences of fulfillment or non-fulfillment of filial responsibility, familial norms and obligations. If the generation gives preferences in normative process they experience pleasure in relationship. If the generations experience differences in the preferences at normative processes, then they experience stress and strain in taking the filial responsibility and familial norms.
22.	Obligations	It is a behaviour that is perceived as appropriate within the context of specific personal relationship with kin in the life cycle (i.e., care giving and fulfillment of the needs and familial roles.)
23.	Support in Relationship	Refers to the preferences or non-preferences of support (economic, emotional and physical) between generations. If they experience the support then their relationship will be pleasurable and fruitful
24.	Subjective Experience	Refers to the subjectively perceived experience of individuals in their interaction, with the other generations, in terms of loss or gain of power, authority and autonomy.
25.	Coping Pattern	Deals with the patterns of coping styles adopted in stressful and strain relations in the family between generations. The generations may adopt problem focused (avoid the situation, talk to each other to resolve the pattern and maintain the communication), or emotional focused (avoid the person, block the communication) or Reactionary (Physical and Verbal abuse) pattern of coping mechanisms with the stressful and strain situations. These coping styles will further influence the pattern of intergenerational relations.

Table 2 reveals that major proportion of respondents experience solidarity type of intergenerational relations (41.8%) followed by Ambivalence type of relationship (33.4%) and Conflict type of relationship (24.8%). In Solidarity, 23.6 per cent belonged to rural background depicting high solidarity type of intergenerational relations. The percentage of male and female from rural background showing such solidarity type of intergenerational relation are 12.3 per cent & 11.3 per cent respectively. However, among the urban respondent only 18.2 per cent showed solidarity type of intergenerational relations and the male and female proportion was equal at 9.1 per cent. In rural area 6.4 per cent older male and 5.9 per cent younger male have solidarity type of Intergenerational



relationship. Whereas in urban area older generation male and female have equal ratio in experience of solidarity type of Intergenerational relationship (4.3%) and younger generation male female have similar trend (4.8%).

In terms of economic class in rural area, high and low class people show the solidarity type of intergenerational relationship. Among the high class 3.2 per cent of the respondent from each group, male and female in both older and younger generation, show the solidarity type of relationship. But among the lower-class it was found that older male (3.2%) and younger male (2.7%), and among the female older (2.7%) and (2.2%) younger female show the solidarity pattern of relationship. In urban areas, upper class 3.8 per cent male and female from older generation and 4.3 per cent younger male, and females show the solidarity. However in Middle class 0.5 per cent respondents from each group older male and older female and younger male and younger female show the solidarity type of relationship.

In Ambivalence 17.7 per cent respondent belong to rural area and 15.7 per cent respondent belong to urban area. In rural area 8.6 per cent respondent are male: 4.3 per cent older and 4.3 per cent younger generation. However the female proportion was 9.1 per cent, 4.3 per cent older generation and 4.8 per cent younger generation. Besides this in urban area 8.1 per cent male, 4.3 per cent older and 3.8 per cent belong to younger generation where as 7.6 per cent female: 3.8 per cent older and 3.8 per cent younger generation show the ambivalence pattern of intergenerational relations. In terms of economic status most of the respondent belonging to middle class family 3.8 per cent older, younger, male female both in rural as well as urban location. However in rural lower class .5 per cent older male, younger male, older female and 1 per cent younger female respondent show the ambivalence pattern of intergenerational relations.

In context of conflict 7.6 per cent respondent from rural background and 17.2 per cent from urban background show the conflict type of relationship. In rural area 3.2 per cent male: 1.6 per cent older and 1.6 per cent younger, whereas 4.4 per cent female: 2.2 per cent older and 2.2 per cent younger generation. In context of economic class 1.1 per cent older male, 1.1 per cent older female, 1.1 per cent younger male and 1.1 per cent younger female are belong to middle class and .5 per cent older male and .5 per cent younger male and 1.1 per cent older female and younger female belong to lower class.

However in urban area 8.6 male: 4.3 per cent older and 4.3 per cent younger generations and similar trend were found in context of female and all the urban conflict experience respondent belonging to lower class family.

### **Main Findings of the Study**

- Similarities and differences in values and attitudes, Normative Process (fulfillment of familial obligation, role and responsibility) and functional Process (Support: Physical, economic and Emotional) and pattern of coping influence the relationship.
- In urban areas, mostly higher class family members experience solidarity, while middle class experience ambivalence and lower class experience conflict. However in rural areas mostly higher class and lower class families experience solidarity while middle class families experience ambivalence.
- In general older and younger generations and male and female have similar trends in experience of relationship.

### **Discussion**

The present findings reveal, most households experience Solidarity (41.8%), followed by Ambivalence (33.4%) and Conflict (24.86%). The patterns of intergenerational relations vary along class status and location of the family. Most of the urban upper class and rural upper and lower class family manifest solidarity pattern of intergenerational relations. Middle class families, both in rural and urban areas, have shown mostly ambivalent pattern of intergenerational relations. However, the urban lower class family has shown conflict pattern of intergenerational relations.

### ***Pattern of Solidarity***

Experienced interdependency as well as fulfillment of familial obligations, reciprocally and extending functional support besides respecting autonomy by both the generations depicts the solidarity pattern of intergenerational relations in urban and rural upper class families. Thus the study brings into focus facts like emotional interdependence between generations as one of the major contributing factor in promoting interpersonal connectedness and solidarity pattern of intergenerational relations (Koutrelakos, 2004; Phalet & Schonpflug, 2001). The joint families are in the process of becoming nuclear but

functionally through this emotional bond, materialistic interdependency and functional support, fulfillment of familial obligations reciprocally lead to adoptive extended family (Khatri, 1975; Fisek, 1995; Merz, 2005).

The rural lower class family are also showing solidarity pattern of intergenerational relations. Most of the families are landless and are dependent on the wage labour which is seasonal and insecure. Thus some of the members in the lower class family migrate to Gujarat and Bengal in search of manual work, leaving their life partner and their children with their sibling or parents or both. The migrated manual workers' family, till he gets employment, is looked after by their parents and they reciprocate by contributing monetarily regularly to the family. Thus through the contribution they fulfill the reciprocity of filial obligations in meeting out the basic needs and enhancing the status of family in village community and caste and this leads to satisfactory relationship between generations (Gulati, 1983; Rawat & Rawat, 1986). On the basis of gender there is much homogeneity in the pattern of intergenerational relations within all the three classes along rural and urban residence.

#### *Pattern of Ambivalence*

Rural and urban middle class families have manifested ambivalence pattern of intergenerational relations. This ambivalent pattern is also observed on the basis of gender. The ambivalence pattern of intergenerational relations is a consequence of subjective and objective level of fulfillment of reciprocity of family obligations, support and normative process. Though the younger generation objectively fulfills the reciprocity of obligations, support and normative process (fulfillment of familial role and responsibility), the older generation acknowledges their contribution but are not subjectively satisfied with the role performance of younger generation. On the other hand, the older generation wants more authority whereas younger generation is becoming more independent and autonomous and also would like to retain authority in their hands. Though middle class families are satisfied with emotional dependency but they are dissatisfied on the issues of material interdependency values and attitude.

Middle class families are experiencing both functional and emotional dependency but are dissatisfied with the extent of functional support extended to them by the younger generation. Also,



the older generation would like to see their children autonomous and independent but they would also like to retain authority in their own hand. Such situations lead to ambivalent pattern of intergenerational relations (Cohler & Geyer, 1982; Kwak, 2003).

### *Pattern of Conflict*

Most of the urban lower class families engage in manual work in the unorganized sector. They manifest conflict pattern of intergenerational relations more significantly than rural lower class families. This pattern of intergenerational relations is rooted in the non fulfillment of reciprocity of obligations, i.e., though the older generation extends support, the younger generation fails to reciprocate it leading to non fulfillment of reciprocal obligations in terms of physical, emotional and economic support. Beside this younger generation's noninvolvement in work, deviant expenditure on gambling, drinking, substance abuse does not contribute to the subsistence need of the family. However they expect contribution from the older generation. Thus, this leads to exchange of word (verbal abuse), and to physical violence (Versa-Sanso, 2007).

So, over all in Indian society all the type of relationships exist. Mostly the higher class people and rural lower class people experience solidarity. Whereas middle class people experiencing ambivalence type of relationship and urban lower class people experience the conflict type of relationship. The major reason behind the findings is that India families function in interdependent model and the generations have emotional and materialistic interdependency. In higher class family generally both the generations are economically independent and they give freedom and autonomy to each other as well as time to time support is also provided to each other whenever required, thus they experience solidarity. However, rural lower class families also fulfill the norms of interdependence through both emotional and materialistic support, so they experience solidarity. On the other hand, middle class generations fulfill the interdependence norms in terms of materialistic support and emotional support, but its not up to the mark or its does not fulfill the generation's expectation so it leads to dissatisfaction, but due to interdependence they maintain the relationship and feel ambivalence in relationship. Urban lower class families experience economic scarcity in resources which leads to individualistic orientation and they are not able to fulfill the interdependence norms and

are not able to support each other which leads to conflict between generations.

In developing agrarian society, intergenerational interdependency is a requisite for family livelihood. The child contributes to the family well-being both while young for example working in the field and contributing to the family economy and later by providing old age security to his/her parents. These processes promote solidarity in relationship. But if children do not contribute in material terms the interdependence of the child is not functional and may even be seen as a threat to their family livelihood. Because independent offspring may take care of his own self interest rather than the interest of family. These processes, create dissatisfactory relationship and lead to conflict and ambivalence type relationship (Kagtcibasi, 1982; 2002)

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## Psychological Well-being and Quality of Life Among Aged Kashmiri Migrants

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### ABSTRACT

*In this study, psychological well-being and quality of life of 140 aged Kashmiri migrants in age group 60–69 years was assessed using Psychological Well-being Scale (Bhogley & Prakash, 1995) and WHOQOL-BREF. Sample was randomly selected. The four domains of quality of life were measured and analyzed across gender. The results were expressed in terms of mean and S.D. t-test and Pearson's correlation were applied. Significant gender differences were found in aged Kashmiri migrants on psychological well-being and domains of quality of life. Significant correlation existed between psychological well-being and domains of quality of life.*

**Key Words:** Psychological well-being, quality of life, male, female, aged, migrants.

The population of India has already crossed mark of one billion. Presently there are 76 million people aged 60 years and over. Demographic projections indicate that elders aged 60+ will reach 100 million by 2016 (Rajan, *et al.*, 1999). Contextual factors determine the well-being of aged people. Usually feelings, satisfactions and constraints felt by the older persons may be used to gauge their sense of well-being (Mallya, 2003).

Psychological well-being (PWB) generally refers to life satisfaction, peace, and happiness. According to Ryff and Keyes (1995)

PWB includes autonomy, personal growth, self-acceptance, life purpose, mastery, and positive relatedness. It covers different factors like meaninglessness, somatic symptoms, wellness and satisfaction, positive feelings, negative feelings, and self esteem. It may be an evaluation done by an individual about his life. PWB depends upon the experiences of individual (Campbell, *et al.*, 1976).

Quality of life (QOL) is a multidimensional, holistic construct assessed from many different perspectives and by many disciplines. The QOL depends on the emotional interpretation the subject gives to the facts and events. QOL is increasingly acknowledged as an assessment strongly dependent on the person's subjectivity (Xavier, *et al.*, 2003). Therefore, the positive QOL – as well as the negative – of aged people depends on the subject's internal variables and on external variables. QOL is conceptualized as a generic, multidimensional construct that describes an individual's subjective perception of his or her physical and psychological health, as well as his or her social functioning, environment, and general life status (Jang, *et al.*, 2005).

Gender differences on PWB were revealed in various studies such as Banal *et al.*, (2010) Mohammed, (2002), *et al.*, Pinguart & Sorensen, (2001). Disparity in QOL between male and female is evident through studies examining the relationship (Asada & Ohkusa, 2004; Mrus, *et al.*, 2005; Prakash, 1998; Prause *et al.*, 2005). These studies have reported QOL of females to be lower than that of males. The studies have also shown no difference among male and female participants on their PWB and QOL (Arber & Cooper, 1999; Barua, *et al.*, 2005; Wilson, 1980).

Positive psychology gives much importance to subjective level. It includes positive experiences such as joy, well-being, satisfaction, contentment, happiness, optimism and flow. This said subjective level is about feeling good. We tend to think that positive affect typically, by its very nature, distorts or disrupts orderly, effective thinking, that positive emotions are somehow simple or that, because these emotions are short-lived, they cannot have a long term impact. Research has shown the above is not to be the case (Isn, 2002). In a study on aged people's subjective well-being and QOL Verma (2008) found that the more satisfaction an aged individual has with future, the better is the experience of QOL.

The growth of population of aged at phenomenal rate has provided us with a good reason to be concerned about QOL of aged.

Recent research in gerontology has begun to systematically study QOL; following the World Health Organization's dictum 'years have been added to life and now the challenge is to add life to the years'. However there are a very few overarching texts available on this topic.

### *Objectives*

The present study was conducted with the following objectives-

1. To assess PWB of aged Kashmiri migrants with respect to their gender.
2. To assess QOL of aged Kashmiri migrants with respect to their gender.
3. To assess an association between PWB and QOL.

### *Hypotheses*

In the light of studies reviewed following hypotheses were proposed to be verified:

1. There will be significant difference in the PWB of aged Kashmiri migrants with respect to their gender.
2. There will be significant difference in the QOL of aged Kashmiri migrants with respect to their gender.
3. There will be an association between PWB and QOL.

### **Material and Method**

#### *Tools*

Psychological Well-being Scale (Bhogley & Prakash, 1995) was used to assess PWB of the participants. The scale consists of twenty eight items and covers different factors like meaninglessness, somatic symptoms, suicidal ideas, social support, self esteem, positive affect, tension, and wellness and so on and gives a comprehensive score about mental health. Maximum possible score is 28.

For the assessment of QOL, the World Health Organization's instrument WHOQOL-BREF was used. The WHOQOL-BREF encompasses 24 facets and has four-domain structure:

1. Physical health-activities of daily living
2. Psychological health-body image and appearance
3. Social and personal relationships and



4. Environmental-financial resources.

Each facet is rated on a five-point scale. A summation and calculation of the mean score for each domain is done. The domain scores are transformed into a 0 to 100-point scale by using the WHOQOL transformation table. A higher score on this questionnaire indicates a better QOL. Analyses of internal consistency, item-total correlations, discriminant validity and construct validity through confirmatory factor analysis, indicate that the WHOQOL-BREF has a good to excellent psychometric properties of reliability and performs well in preliminary tests of validity (The WHOQOL Group, 2008).

*Sample*

140 aged Kashmiri migrants in the age group 60–69 were chosen as the sample of the study that is 70 females and 70 males. The mean age of the female participants and male participants was 63 and 64 respectively. All the subjects were interviewed in their home personally. The data was collected using random sampling method.

*Procedure*

The data was collected individually at the residence of the participants. With the help of Kashmiri speaking research assistant the purpose of the study was explained to each participant. Rapport was established and demographic details were obtained. The data was collected through presenting the Psychological Well-Being Scale and WHOQOL-BREF one after another. The participants were assisted in filling up the forms by reading out the items loudly and marking the options chosen by them. This assistance was provided only to those participants which were either unable to read or write or preferred speaking to filling up the form on their own. It took nearly less than one hour to collect the data from each participant.

*Data Analysis*

Data was tabulated and analyzed using the Statistical Package for Social Sciences (SPSS) version 17. The results were expressed in terms of mean and S.D. t-test and Pearson's correlation was applied to assess gender differences in psychological well-being and the four domains of QOL and also to find out the correlation in these variables.

## Results and Discussion

Mean and SD were computed for the scores obtained on the measures of psychological well-being and QOL. The independent samples t-test was applied to compare the scores across gender. Pearson's correlational analysis was carried out to assess an association between scores on Psychological Well-being Scale and four domains of QOL.

### *Results Related to Gender Differences*

The mean scores and SD's of both male and female aged Kashmiri migrants on the measures of PWB and QOL and 't' values have been presented in Table 1. The differences between male and female aged Kashmiri migrants were statistically significant on the domain of physical health, psychological health and social relationships. However, there was no statistically significant difference between both the groups on the environmental domain. The groups also differed significantly on the measure of PWB.

**Table 1**  
*Comparison of Gender and Mean Scores of Domains of QOL and Psychological Well-being*

	<i>Gender</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>T-value</i>
Physical Health	Male	70	23.41	5.83	3.47**
	Female	70	20.01	5.75	
Psychological	Male	70	20.33	4.46	3.13*
	Female	70	17.79	5.11	
Social Relationships	Male	70	10.71	1.96	4.94**
	Female	70	8.86	2.46	
Environment	Male	70	25.30	5.78	0.61
	Female	70	24.71	5.62	
Psychological Well-being	Male	70	16.94	5.56	3.69*
	Female	70	13.60	5.14	

\*\* Significant at 0.01 level.

\* Significant at 0.05 level.

**Results Related to Correlational Analysis**

Table 2 presents the values of correlation between PWB and four domains of QOL for both male and female and for total group as well. The findings reveal a significant association of PWB with four domains of QOL. PWB significantly correlated with physical health domain ( $r = .72, p < .01$ ), psychological health domain ( $r = .69, p < .01$ ), social relationships domain ( $r = .54, p < .01$ ) and environmental domain ( $r = .57, p < .01$ ). In the current study even when the two groups were considered separately, similar findings were obtained for male and female elderly, clear associations were observed between PWB and four domains of QOL.

**Table 2**  
*Correlation between Psychological Well-being and Four Domains of Quality of Life*

	Gender	Physical Health	Psychological	Social Relationships	Environment
<i>Psychological Well-being</i>	Male	.69**	.60**	.41**	.48**
	Female	.69**	.73**	.55**	.71**
	<b>Total Group</b>	<b>.72**</b>	<b>.69**</b>	<b>.54**</b>	<b>.57**</b>

\*\* Correlation is significant at 0.01 level.

The findings of the study suggest that statistically significant differences exist between male and female elderly on the scores on Psychological Well-being Scale and four domains of QOL. These findings are supportive of research hypothesis 1 and 2.

Correlational analysis revealed that when all the subjects were considered together, it appeared that PWB was strongly correlated with physical health. The moderate correlation was evident in relationship between PWB and psychological health, social relationships domain, and environmental domain of QOL. However, when the two groups were considered separately, findings revealed that in case of male participants the PWB was moderately associated with four domains of QOL. Though for female participants the moderate correlation was found between PWB and physical domain and social relationships domain the high correlation was found between PWB and psychological health and environmental domain. These findings are supportive of research hypothesis 3.

The results draw our attention toward heterogeneity in the population of aged. The gender differences in the population of aged people should be taken into consideration. Aged female participants have shown lower PWB and QOL than that of male participants. The results are in line with the findings obtained by (e.g., Carmel, 2001; Crimmins, *et al.*, 1997; Friedman, 2003; Stuckelberger & Hopflinger, 1998; Verbrugge & Jette, 1994)

Irrespective of the differences found on the measures of PWB and QOL with respect to gender, the scores on these measures have shown moderate to high correlation in PWB and domains of QOL. The results seem to suggest that PWB and QOL are not contingent upon gender. The results obtained have clearly indicated an association between PWB and domains of QOL in both male and female participants.

Since PWB is associated with QOL, studies designed to explore the factors responsible for PWB should be conducted. Efforts should be made to understand and enhance PWB. The subjective feelings are found to be crucial for PWB. The growth and maintenance of positive feelings may ensure the absence of the negative feelings. It is possible by growing positive feelings we reduce the negative ones. The most efficient way to reduce negative and increase positive thoughts and emotions is maybe to focus on increasing the positive. To reduce stress and increase calm, tranquility, and health, attention maybe given to increase positive states rather than on the eradication of negative states (Fredrickson, 2001; Fredrickson, 2003; Fredrickson & Branigan, 2005). Research exists supporting brief interventions to increase positive psychology constructs, like happiness (e.g., Seligman, *et al.*, 2005). A meta-analysis of 51 such interventions was conducted by Jennings (2009) with 4,266 individuals and the results revealed that positive psychology interventions do indeed significantly enhance well-being.

The journey to identify factors that help individuals preserve or enhance their cognitive and emotional health as old age begins to set in is now a major public health goal (Hendrie *et al.*, 2006). Effective ways to bring positive psychology concepts into practice needs to be explored for ensuring better PWB and QOL of aged migrants. The strategies are to be explored so that well designed positive psychology interventions are extended in health care settings where it is not generally embraced. The increased penetration of positive psychology interventions is desirable for better PWB and QOL of aged migrants. The findings of this study may have limited generalization as only aged

Kashmiri migrants in the age group of 60–69 years were studied. Similar variables should be explored in other stratum to establish the findings of current study.

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## Ageing, Poverty and Social Services in Portugal: The Importance of Quality Services

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### ABSTRACT

*This article discusses poverty in old age and highlights the social and financial importance of assuring quality services to the older population. Considering the EU strategies to combat poverty and social exclusion the paper describes the policy intervention in Portugal together with the main organizational features of support services for older people and their social inclusion. In Portugal, there has been a substantial decrement of poverty among older people, because of policy intervention. Nevertheless the percentage remains high and the economic crisis, with consequent cuts in social expenditures, risks to jeopardize previous positive results. It is necessary to look not only in what extent services are provided to older people, but how they are provided in terms of meeting specific older people needs, in particular if – and how – health and social services promote an active role for older people and full participation in social life. This is important not only to ensure quality of life to the older population, but also prevent the inevitable social cost of their exclusion, in terms of their increasing dependence. The study highlights the importance of developing a multilevel understanding of how the local welfare system can contribute to fighting inequalities and social exclusion and quality of life in an ageing Europe. Marginalization and social exclusion can be fought through exploring and understanding the actual circumstances in which they are interactionally produced. Institutional*



*intervention can have mobilizing positive effects, promoting active ageing and participation in social life; but can also negative and limiting effects, that can have dramatic consequences for older people: physical and mental deterioration and increased dependence. The study points out the social and financial relevance of quality services for older people, in the perspective of the promotion of active ageing.*

**Key Words:** Active ageing, Poverty, Social exclusion, Social services.

Population ageing is unprecedented in human history (UN, 2002). To live longer is one of the main achievements of modern society due to an increased access to resources and health services of increasing part of the world population, but has profound implications.

“Population ageing is profound, having major consequences and implications for all facets of human life. In the economic area, population ageing will have an impact on economic growth, savings, investment and consumption, labour markets, pensions, taxation and intergenerational transfers. In the social sphere, population ageing affects health and health care, family composition and living arrangements, housing and migration. In the political arena, population ageing can influence voting patterns and representation” (UN, 2002, XXVIII)

As a society we have to learn to manage a part of population that simply was not there before; that means fighting age discrimination and promoting full participation in social life of older people, as well as, making this process economically sustainable. In fact, it means that we have to rethink society in relation to these changes in the age structure of the population.

Considering the issue of poverty among older people and referring to The European Union (EU) Portuguese strategies of combating poverty study (National Action Plan for Inclusion, 2008), intends to discuss the role of support services for older people, in combating poverty and social exclusion. To study innovative social services in combating poverty among older people is an issues of national interest, in order to improve the living condition of this segment of population, but it is also relevant in relation to the EU 2020 strategies of inclusive and sustainable growth (European

Commission, 2010). We aim to argue that quality support services for older people, and in particular for those living in poverty, can mean a reduction in terms of health and social support costs. Promoting active and healthy ageing (EU, 2007) should be first of all an objective of all institutional intervention in relation to the aged population.

This article is part of an ongoing research project: *Aging, poverty and social exclusion: a interdisciplinary study on innovative social services*. This study aims to look at the role of social work and social services in combating poverty and social exclusion among older people. It will produce evidence of the efforts done at policy level and it will describe good practices in services provisions in order to fight inequalities and social exclusion, in relation to poor older people, with an attention to groups particularly at risk of exclusion.

The article aims to situate within the relevant literature the issue of poverty among older people in relation to social services intervention. It starts presenting relevant data on poverty among the aged population and presenting the main EU strategies for combating poverty and promoting social cohesion and the main policies intervention in Portugal, discussing in particular the role of social services. In the last part, the study highlights the importance of promoting active aging and the role that social service can have in it.

### Poverty in Old Age

EU has an increasing older population, and the trend is not going to change, but rather to intensify and diversify in term of ethnic membership (UE 2008). Giannakouris (2008) says: "Whereas in 2008 in the EU27 there are 4 persons of working age (15–64 years old) for every person aged 65 years or over; in 2060 the ratio is expected to be 2 to 1." The evolution of the composition of the population in Portugal is consistent with the European trend (INE, 2011a; b). In 1990 in Portugal there were 1 356 709 people 65+; in 2009, the older people were 1 901 153. After less than 20 years the older people 75+ had almost doubled: from 533 379, in 2009; to 890 608, in 2009. The gender differences in the composition of the older population are also particularly relevant, in 2009 we have 536 692 women versus 332 025 of men in the 75+ age group (INE, 2010). Women represent 2/3 of the older people among the oldest old (80+).

In parallel, resident population in Portugal has been ageing continuously, as a result of a decline in fertility and an increase in

longevity. Gains in the Portuguese population average life expectancy are increasingly due to a rise in advanced age survival. Average life expectancy at 65 years of age kept a positive trend, reaching 18.19 years in the 2007–2009 period. For this period, average life expectancy at birth was estimated at 78.88 years, i.e., 75.80 for men and 81.80 for women. (National Institute of Statistics (INE), 2010)

A large part of the older population in Portugal is poor and pushed to the margin, in particular older women (Santana, 2002; Vasconcelos Ferreira, 2005, 2006; Lopez, 2010). In fact older people are the population subgroup at the highest risk of poverty, according to the latest National Plane of Social Inclusion 2008–2010, (PNAI, 2008).

Costa, (2008) defines poverty as: “a situation of deprivation generated by the lack of resources”. According to this author, deprivation means life conditions that are lacking in different areas: food, cloths, housing, transport, communication, choice opportunities, working conditions, health, education, professional training, participation in social, cultural and political life. Lack of resources refers to the difficulties and impossibility to gain access to the economic system – the system that generates earnings, such as the work market, and consequently to the market of goods and services, as well as to the credit system. According to Costa (2008), the lack of resources can create problems in the access to social, educational, training services, social housing and into the justice system. The access does not mean merely the contact with these services, but it implies the successful outcome of actions aimed at empowering the persons involved. The lack of resources can also mean a weak network of family relations, as well as institutional relations. Deprivation and lack of resources imply the risk of loss of symbolic references, such as social identity, a feeling of belonging to a community, a decreasing of social aspiration, luck of self reliance, decreasing ability to get over difficulties and conformity. The lack of social identity can imply the total loss of social relations: dissociation. This dissociation refers to the lack of power: political, economic, social and cultural power, to the ability to influence decisions, and to be able to exert social pressure, it produces social exclusion<sup>1</sup> (Lenoir, 1974).

### *Specific Risks of Poverty in Old Age*

For older people poverty and social exclusion are associated to specific risk factors (Capucha, 2005b): Not only insufficient earnings,

for example, their pension is insufficient to cover their living and medical expenses; but, for example, lack of education and consequently illiteracy. Living alone is another risk factor, in particular for widows, together with dependency, due to degenerative illness and physical and mental problems with the consequent need of care. The discrimination on the base of age is also a widespread phenomenon, associated to the lack of employment for older workers. Moreover poor and inadequate housing are still quite common among the older population, referring not only to the lack of accessibility of building, but also to the lack of basic services in the house: no water, no heating system, no sanitary. (Costa, 2008). Older people have often difficulties in participating in social and cultural activities. Gender issues in ageing have also to be considered (Ribeiro e Paúl, 2011). Older women are at a greater risk of poverty comparing to men, their income is generally lower. Moreover they also live longer (INE 2011a; INE 2011b), consequently they are at a greater risk of becoming ill and dependent. Considering the cultural aspects in ageing is also important in order to understand the principles, values and mores of this part of the population.

### **Policy Intervention in Combating Poverty and Social Exclusion in Portugal, in Relation to the EU Strategies**

In Portugal, the poverty rate among older people has recently decreased (PNAI, 2008). In 2005 the poverty rate was of 26 per cent and in 2008 it was of the 22 per cent. (Ibid.). This result was achieved because of specific policies. In particular it was due to an increase of earnings of the poorest older people, obtaining “*o complemento solidário para idosos*” (solidarity supplement for older people) (Decreto-Lei n° 232, 2005) and other benefits included in the program. Investments were also made in social services, improving the offer of support services such as: older people homes, day centers, home services (Capucha, 2005a; Ferrera 2005; Instituto da Segurança Social, I.P. Lisboa (2005a, b, c) and in particular the health services integrated with social services “*à rede de cuidados continuado*” (the network of continuing care) (Carvalho, 2010, Decreto-Lei n° 101, 2006).

The decrease in the poverty rate among older people, due to specific policies implementation shows that those interventions can actually improve the condition of this group. It is evident though that if these interventions are suspended the poverty rate is going to

increase again. The present financial crisis motivates cuts in the investments in social policies, consequently the risk of poverty among older people is possibly going to increase.

In order to promote social cohesion and social capital EU (2010) produced a policy document: "EU 2020 – EU strategy for smart, sustainable and inclusive growth". In this strategy three main objectives are defined, among them there is inclusive growth, through economic development. Inclusion is a difficult concept to be defined since it is strictly related to different measures of poverty and exclusion. Different levels of exclusion may exist as well as different levels of inclusion, for example, digital-exclusion, that is, people who are unable to use information technology. Costa (2008) provides an example of the limit, the minimum income, after which a person is considered excluded. In this way all the situations above this limit would be considered included (considering this the minimum level of inclusion).

In PNAI (2006), the process of inclusion influences the transformation of economic, social, political and cultural institutions. Those institutions become able to accommodate people in relation to their specific needs, allowing them to actually exercise fully their citizen rights. In this respect PNAI appears to reflect the main orientation of the EU strategy 2020. In order to reach these objectives, the document proposes the inter-institutional cooperation, the assumption of responsibilities in the private and public sectors. Moreover it promotes the development of innovative programmes for the most vulnerable groups, fighting discrimination, as well as, improved access to health and social services, encouraging the exchange of good practices. Given the financial weakness of the Portuguese welfare state, the inclusion of older people in society is mainly the responsibility of the private and non-governmental organizations. In the next paragraph we are going to examine how the inclusion of older people is implemented.

### *Social Services Intervention*

At present, the state has a regulating role in relation to social intervention, through financing, promoting social and health services. The regulation represents a form of state's imposition of public rules over the private and no-profit market. (Eberlein, 1999).

The services are produced in the private and no-profit sectors, on the basis a welfare mix.

In general terms, in relation to social policies, decision-making in the Portuguese welfare state is centralized, depending from the government, mainly the ministry of social security, health and education. These orientations are developed at central level (*Lei de base da Segurança Social*, 101/2007) and sent for the regional level, where these institutions have local services. The central and regional institutions are connected with the social institutions called: *instituições particulares de solidariedade social* (particular institutions of social solidarity) (Decreto-Lei n° 119, 1983), that are non governmental organizations and for profit organizations. The central and regional institutions are connected to the local administrative government, that is, the municipalities. All these organizations and institutions creates networks, called: *rede social* (social network) (Decreto-Lei n° 115 (2006). These social networks have as main objective detecting populations needs and to develop synergy among institutions and promote services adequate to the population's needs.

Policies aimed to older people imply financial benefits, health services provision, including fiscal exemptions and projects of inclusions specific for each territorial area. Financial benefits are the responsibility of the central government, through the department of social security. People of 65 years of age or older have the right to a pension because they have contributed to the pension system (retirement pension), or because they are living in poverty (social pension). The majority of the existing pensions and social benefits come from the social security department, that comprises the social security system and the solidarity system (*Lei de bases da segurança social*, 101/2007). There are also other sub-systems, such as a special security system for the protection of the state workers whose pension are managed by the Caixa Geral de Aposentações (general pension deposit). Beyond this social security measures, there are other measures as the disability pension and financial complement for dependency. In recent years, as we already pointed out, a new social security measure was approved named, "*complemento solidário para idosos*" (solidarity complement for older people), aimed at those older people who were living in poverty.

The support services for older people includes: older people homes, day and community centers, home care. In addition to this

type of intervention there are also some tax exemptions in relation to medicaments, as well as some fiscal benefits for relatives of dependent older person living in nursing homes. In recent years a network of integrated health and social services has been developed and implemented, creating a national and regional coordination of services. The activation of services is negotiated with private for-profit and no-profit organizations, in order to improve existing services and creating new services, in conformity with the parameters established by the law (Decreto Lei 101/2006) and other subsequent regulations.

The specific aim of the network is to provide care after hospital discharge, for patients who need rehabilitation and long term care. The network of integrated health and social services is not developed in the whole country yet, moreover, the waiting time to access the services seriously jeopardize its effectiveness. Nevertheless, the network is innovative for various reasons, in particular for the attention of the continuation of care, the evaluation and response to the patients needs, made by a multidisciplinary team. Moreover this network has generated employment in this area of social intervention. The study of Gendinning (2009) presents the issue of quality and equity of services in various countries in Europe, including Portugal. The author points out that the quality of services is low compared to the European standards. It is not sufficient to create guidelines, it is necessary to put them into practice.

In Portugal poverty is structural phenomenon. (PNAI, 2006). The state has been developing guidelines for improving the quality of the social intervention and its accessibility (Instituto da Segurança Social, I.P. Lisboa 2005a, b, c). This orientation are produced from the Ministry of Social Security for the Private Institutions of Social Solidarity (IPSS) that have the responsibility of putting them into practices. These institutions are very different among themselves, in relation to their organizational structure, their management, the quality and quantity of services that are offered, as well as in relation to the diversity and specialization of the professionals who work in them (Carvalho, 2010). One important aspect to be considered is the participation of people in decision-making affecting them; in this area there is still a lot to do.

### The Social and Financial Relevance of Quality Services

In Europe and in other Western Countries welfare systems have been progressively restructured, moving increasingly towards a market economy in the provision of social care (Hespanha *et al.*, 2000; Aronson, 2002; Ferrera 2005). For example, Aronson's (2002) longitudinal study on home care services in Canada shows the material consequences of cuts in public provision of social care, in the actual lives of the older women she interviewed. The study highlights in details the consequences in terms of self perception and shrinking life perspectives. Aronson & Neysmith, (2001) point out: "Such subordination and reduction of identity is embedded in the health discourse that dominates home care users' lives, counting them as nothing but their everyday functioning and failure to be self-sufficient". In fact services are provided to grantee mere survival and not older people's participation in social and community life. For example, subsidized transportation is generally provided only for medical appointments; personal care and household help are reduced to a minimum, to the point that some of the women interviewed felt unfit to receive friends in their home. "Charged with rationing scarce resources, case managers use a medical discourse that questions the legitimacy of some needs and seeks to off-load responsibility for care from the public sector, to exclude wherever possible." (Aronson & Neysmith, 2001).

We aim to argue that this minimization of aids on support service for older people is primarily economically short-sighted and ineffective considering the perspective of having to manage the increasing ageing world population. Differently from other sets of the population, many older people, in particular among the oldest old, have frail equilibrium that can easily be shattered, implying drastic decrement for their quality of life, increasing dependency and multiplying costs and the need of care for societies and for their families, very often for the female family members. A large part of the informal care-giving is carried out by women (Paoletti, 2007). Women's work opportunities and careers may be affected by care-giving commitments, increasing their risk of poverty in old age. These effects on sustainability and social cohesion are at present largely underestimated.

Participation in social activities and social network is important for the quality of life of older people, but also it has preventive effects on mental and physical functioning. In fact, intervention to promote



older people's participation should take activities of daily living, social activities and social relations with family, friends and acquaintances into consideration. Intervention aimed at compensating for older people's reduced capacity probably will not be sustainable for European societies in the longer run as it may put a heavy burden on those responsible for providing care. Preventive and rehabilitative efforts are needed to counter the disablement process among older people (Verbrugge and Jette 1994).

The importance of prevention is spelled out clearly by psychologists in the "*Berlin declaration on the quality of life for older adults*" it reads: "Solid evidence from decades of cognitive training research has shown that there is enormous plasticity of functioning – within biological limits. Particularly, the ages between 60 and 80 offer a late possibility to avoid or compensate normative losses of functioning by intervention" (Fernandez-Ballesteros *et al.*, 2009). Physical and mental decline are not an ineluctable destiny, there is space for intervention. Mental and physical ability can be retained and also recuperated. Moreover ageing well is above all a right. The European Union (2010) has recently promoted: "*European Charter of the rights and responsibilities of older people in need of long term care and assistance*", the article 6 "*Right to continued communication, participation in society and cultural activity*" reads: "As you grow older and may come to depend on others for support and care you continue to have the right to interact with others, and to participate in civic life, lifelong learning and cultural activities. ". Promoting healthy and active aging, full participation in social life is a matter of improving population life condition, but also of contributing to a sustainable development. Increasing dependency results in increased social costs.

### ***Institutional Caring Practices and Identity Work***

Different perceptions of oneself as an older person involve considerable differences in the definition of the person's possible sphere of action, and therefore, in their life perspectives. Coupland and his associates (Coupland, *et al.*, 1991) have pointed out the variability in the use of the category and different implication in identity work. Distancing from the category or denial of ageing, speakers project a positive personal identity for themselves (Coupland and Coupland, 1989). The association with the detrimental characteristics of the category, are often used to justify limitations (Coupland, *et*

*al.*, 1989), with different implication for identity projection. In other words, being an older person can have different meanings. Active ageing is often associated with distancing from old age categorizations; while association with such categories is related to self images of frailty and dependency. Paoletti (1998a) examined the embeddedness of use of categories in practical activities and in specific institutional contexts. The use of categories is far from mechanical; rather, it is intertwined in a net of aims, motivations, moral relevance and social and institutional practices.

It is during concrete, ordinary occasions that people either get trapped in stereotypic constructions that limit and restrict themselves, or are able to skillfully play with categories, producing a "space" for positive self-images, announcing new and exciting life perspectives. Such constructions are not produced "in people's heads"; rather they are bound to specific social and institutional settings as well as concrete circumstances as the product of members' interpretative work in relation to specific activities. It is though the variability of the use of categories that either marginalization, exclusion of older people, or, instead, integration and social resourcefulness, are conversationally produced. Consequently it is important to understand how social work and social support services for older people are done, and describing in details communicative and caring practices. In fact, it is important to be aware of the fact that the interaction among older people, social workers and operators in various services are the sight of negotiation of important feature of older people identity and have direct impact in their health, well-being and their participation in social life.

In relation to older people it is very relevant to look at how services are provided in actual interactional terms. Such practices can contribute to older peoples' independence and social inclusion; or they can reinforce images of dependency and frailty and exclusion. Marginalization and social exclusion can be fought through exploring and understanding the actual circumstances in which they are interactionally produced. Institutional intervention can have mobilizing positive effects, promoting active ageing and participation in social life; but can also negative and limiting effects, that can have dramatic consequences for older people: physical and mental deterioration and increased dependence. It is necessary to identify care that ensure not only mere survival, but quality of life and participation in

social life of older people and to show good communicational practices developed by social workers and services providers in relation to older people at risk of exclusion.

Quality caring can ensure older people a better life, but it can also have its pay off in terms of reduction in medical and care expenditure. Previous studies have shown the relevance of institutional intervention in terms of activating positive self image and promoting active aging, showing in detail how it is done in actual interactional terms (Paoletti, 1998a; 2004). Being an older person can have different meanings and concrete consequences in terms of health and quality of life (Paoletti 1998a; 1998b). Institutional intervention can make a substantial difference in the sense of either promoting social engagement in social and cultural life, empowerment, participation in decision-making, or contributing to social isolation, cultural and political exclusion of older people. Denmark has interesting experiences to offer in relation to economical sustainability of support services for older people.

In Europe, Denmark was one of the first countries to adopt policies aimed at maintaining older people in their community, leaving institutional care as last solution. In 1987, the *Act on Housing and Older Disabled Persons* shifted drastically public expenditures from institutional to home- and community-based services: “By 2002, only three per cent of people aged 65-plus and ten per cent of those aged 80-plus lived in a nursing home” (Glendinning, 2009). In Denmark, public services are tax-financed, accessible to all citizens, regardless of their income, and free of charge. Municipalities have the responsibility of organizing and managing support services, the Central government sets the overall legislative framework. “The principles underpinning services for older people include flexibility and responsiveness to meet individual needs, consideration of any needs on the part of the older person’s family and an emphasis on self-help and prevention. (Glendinning, 2009).

In 1984, the Danish municipality of Skævinge reorganised its care services for older persons, creating “the Health Centre Bauneparken” that integrated health and social care with a rehabilitative and activating care approach. A recent evaluation of the project points out: “Even though the number of older people had increased significantly, the operational expenditures had decreased over the period due to the preventative focus of the integrated care scheme.” (Marin *et al.*, 2009).

Effective, support services for older people, substituting or integrating family help, should be flexible and cover a vast array of possible needs, from personal help to house structural modifications, that is, client-centered integrated services, addressing specific problems. Previous studies of family caregiving have explored the complexity of the caring relationship, in which gender, moral, relational, financial and housing are often interrelated (Paoletti 2010, 1999a, 1999b; 2001; 2002; 2007). In relation to people living in poverty, it is important the adoption of integrated strategies addressing multiple factors effecting poverty and social exclusion of a long-term approach, promoting permanent solution, through a definite plan of multi-service intervention. "People in difficult social situations are frequently confronted by a variety of different problems, from homelessness to indebtedness, from poor health to unemployment. These problems are interdependent and may lead people from one service to another. It is necessary to draw an overall, personalised help plan with the persons concerned in order to solve all their various problems. In order to respond to the whole person, social services must adopt an integrated approach, i.e., coordinate their activities, cooperate closely and network the services on offer." (Farrell, *et al.*, 2010)

### Conclusion

In this study we have outlined some issue about poverty among older people in Portugal and we described some of the main interventions in Portugal in terms of financial policies and services provision. We have highlighted the importance of quality services. Support services should promote active ageing, aiming at preventing and recuperating physical and mental loss of older people.

Studies on the sustainability of support services for the ageing population are carried out mainly at the economic level. We think that it is fundamental to develop research that combines different methodological perspectives on this topic at the macro and micro level. A macro-analytic approach of policy intervention should be combined with a sociological approach to the study of the organizational features of social intervention through the analyses of the network of services. Moreover a micro-analytic study of the interaction between older people and services providers should be conducted, that is, looking at how the services are provided in actual interactional terms. In this perspective it is relevant to identify good practices in relation to the

various levels of intervention that promote social inclusion of older people and active aging. It is through the promotion of quality services that we can plan financial sustainability of those services in relation to the increasing aging population, in particular of the oldest group.

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### Note

- I. The creation of the expression ‘Social Exclusion’ is attributed to René Lenoir (1974) with the work *Les exclus* (the excluded). The word was used to raise awareness about the inability to include specific groups, in an expanding economic system such as physically, mentally and socially disabled people. Rapidly the word exclusion, started to circulate in the political area and replaced the notion of poverty for certain time.

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## Leisure: Effect on Healthy Ageing

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### ABSTRACT

*The ageing population is growing faster in number across the globe. The profile of the elderly population is witnessing a transformation influencing their quality of life. As people age and grow with time their participation in leisure and recreation activities change as a result of the innate life cycle transitions, and thus the need arises for government and non-government organizations to bring to the mainstream the intervention policies, and for programmers to improve the essence and qualia of the ageing population. Healthy ageing is a concern which is pertinent to the present scenario in order to decrease morbidity and promote quality of life particularly as the population ages and matures with time. The significance of leisure and constraints on the leisure which may lead to non-participation remain underscored. Henceforth, the social support system and policy developers need to promote leisure activities as an important component for the healthy ageing process. The paper addresses the issues relevant to the need for leisure in old age to promote healthy ageing identifying in the process the benefits that leisure can provide and constraints that establish an impact and influence the leisure attitude has on people in their later reminiscent years.*

**Key Words:** Ageing population, Healthy ageing, Leisure, Role of Leisure, leisure constraints.

The population of old people is growing faster than the other age segments of total population practically in all regions of the World. The number of older persons has tripled over the last 50 years; it would be more than triple again, over the next 50 years (Mallick, 2009). Population ageing is the most significant result of demographic transition (Prakash, 1999).

Ageing population is a reflection of man's appreciation and tryst with nature! However, the steady, sustained growth of older people poses myriad challenges to policy makers and societies all over the world (Indu, 2008). Profile of the elderly population is undergoing a transformation. Today, the proportion of aged people that intends to lead active lives of fulfillment and contentment for themselves and their family and the community is on an increase. These changes affect their quality of life both directly and indirectly (Raju, 2006). The recent emphasis on studies pertaining to the elderly in the developing world is attributed to their increasing numbers and deteriorating living conditions. The growth of individualism on account of increased urbanisation, industrialisation and globalisation affects the status of the elderly. The socio-economic problems of the elderly are aggravated by factors such as the lack of social security and inadequate facilities for health care, rehabilitation, recreation and leisure (Ingle & Nath, 2008).

Ejaz, *et al.*, (1997) highlighted the percept that older people's quality of life is not solely dependent upon providing quality medical and physical care but is also dependent on involvement in appropriate leisure programs which contribute to older peoples' social, creative, emotional, psychological, spiritual and cognitive well-being.

As people age with time, their participation in leisure and recreational activities changes as a result of life cycle transition, such as retirement from paid work and the "empty nest syndrome". In later years such participation can also be expected to change further, because of declining physical and mental capacities. Leisure time has been defined "as a time when people can do what they want to do, away from work and other commitments". Recreation can often involve a physical activity or sport. Leisure and recreation as are a means that provide people, with a sense of identity and personal autonomy, add meaning to individual and community life, and encourage personal growth and self-expression (Van der Pas & Koopman-Boyden, 2007).

Through leisure ageing people are not only able to express themselves freely but also create alternative roles and identities for themselves. In spite of the complexities of later life “Leisure can provide the freedom To Be” (Roberts, 2006).

### **Leisure and Healthy Ageing**

Healthy ageing decreases morbidity and promotes quality of life particularly as the population ages. The term “healthy ageing” has been proposed as alternative to successful ageing (Strawbridge, *et al.*, 2002).

Aldwin & Glimer (2003) suggested six dimensions of successful ageing which includes, good subjective health assessment (i.e., good self-ratings of one’s health), length of un-disabled life, good mental health, objective social support, no physical disability over the age of 75 as rated by a physician and self-rated life satisfaction elaborated in eight domains namely, marriage, income-related work, children, friendship and social contacts, hobbies, community service activities, religion and recreation/sports.

It is important to know how people attain satisfaction from and through their leisure activities. McAuley and Rudolph (1995) stated that “leisure activity was the key ingredient in healthy ageing”. Besides, *et al.*, (2000) found that, it was popular to believe that leisure activity enhanced well-being across a person’s life span and there are evidence of association between leisure activity and well-being in the elderly population. The higher the participation in leisure activities higher would be the life expectancy, improvements in health status and enhancement in quality of life among ageing adults (Hendricks & Cutler, 2003).

Leisure helps ageing people in gaining social satisfaction and having rewarding relationships with others and thus providing social integration. Leisure is a social space for family and friends; it is a source of additional social identities and personal meaning for the elderly and a measure by which role development, personal identity and social identity could be established. The benefits of leisure are varied – enhanced social skills, improved physical fitness levels and intellectual skills. It promotes stimulation and interest in life and the provides opportunities for pleasure and fun (Brown, 1994). According to Department of the Arts, Sport, the Environment, Tourism and Territories (1990), leisure induces a sense of belongingness, security, mental

stimulation, happiness, improved decision-making, independence, relaxation, socialization, escapism, and opportunity to express ideas and be creative, increased self esteem decreased boredom and frustration and personal growth. Benefits can also be gained in maintaining fitness levels and improving sleep patterns, a major concern of the ageing population, reducing the need of sedatives and reducing digestive complaints and maintaining physical and mental health.

According to WHO (2002), Leisure Time Physical Activities (LTPA) have many health benefits: most of the leisure activities are beneficial for skeletal and muscle physiology, emotional and cognitive well-being and prevents degenerative diseases. LTPA is part of a healthy lifestyle and has positive health effects across various age cohorts, ethnic populations, and chronic diseases. Fransson *et al.*, (2003) found that LTPA significantly reduce the risk of developing cardiovascular disease in elderly. Elderly people who participated in light intensity exercise had reduced number of falls and resistance exercises helped frail elderly people improve their muscle strength (Mazzeo *et al.*, 1999). Juarbe, *et al.*, (2002) also supplemented the above findings that a regular pattern of leisure activities generate a number of health benefits like a sense of improved physical health, a better management of disease, illnesses prevention and promotion of mental health and improving the overall quality of life thereof. Appropriate leisure programs are often crucial factors in preventing and delaying mental deterioration. The desire to learn and be mentally proactive does not diminish with age.

Leisure activities offer a legitimate source of identity after retirement (Bevil, *et al.*, 1993) and leisure is a powerful force in helping make later years positive and exhilarating (McGuire, *et al.*, 1996). Elderly people obtain a sense of familiarity, security and continuity; they develop new interests, improve their self-attitudes, enhance self-esteem and reinforce self confidence. Planned leisure services can make a significant contribution to individual's perception of enjoyment and well-being (Teaque & MacNeil, 1992).

Man essentially seeks company and society. Regardless of age, social and family interactions are significantly related to life satisfaction. Leisure is an area where social relationships can be made with participants on an equal footing (Patterson & Pegg, 1998). The availability of and participation in leisure activities provide opportunities

for social interaction, development of friendships and reduced social isolation. This, in turn, is associated with improved mental and physical well-being (Ejaz *et al.*, 1997).

Researches for older adults have reported that spending time in leisure activity is positively associated with physical health, psychological well-being and life satisfaction (Iwasaki & Smale, 1998) and highlighted the relationship between older adults' leisure involvement and life satisfaction. Individuals who participate more frequently in a greater variety of activities experience greater psychological well-being (Siegenthaler, 1996). The importance of self-rated health status has been demonstrated in Chinese older adults as well, and had been found to be significantly related to life satisfaction (Chou, *et al.*, 2004). Meer (2008) has also supplemented the above findings and stressed that leisure activities afford an important way for older people to continue to take part in society and have a positive effect on well-being.

### **Factors Affecting Leisure Activity Participation in Elderly**

At a personal level, one's leisure is shaped by factors such as relationships, living arrangements, level of education, socio-cultural background, previous experiences as well as gender, race, state of well-being, work opportunities and discretionary income. As desirable as leisure may be with regards to self-actualization and quality of life, it should be noted that not everyone in later life has the freedom of choice for engaging in a diverse array of activities. However freedom not to accept a definition of oneself as 'old' and to continue to live a satisfying life requires a particular combination of material, social and cultural capital (Collins, *et al.*, 2001).

Wong *et al.*, (1999) reported that support from friends is an important factor which influenced leisure participation among all levels of people, but family was the most significant factor in influencing factor in leisure participation.

In spite of the populace belief that older people may have considerable amount of free time, having too much can induce a feeling of uselessness and loss of purpose. It can be like a predator for some while for others it is something to be treasured. Leisure, however, does not happen by chance, and freedom that may allow choice of leisure is not the same for everyone (Freysinger, 1999; Veal & Lynch, 2001). Freedom requires a certain amount of creativity, discipline and sense of personal responsibility (Grant, 2002). It is also difficult for many

older people to conceive a world oriented towards the consumption of leisure when leisure is considered as anything other than self-indulgence (Blaikie, 1999).

### **Common Leisure Constraints**

Leisure Constraints include obstacles, limitations, impediments, restrictions, and other factors placed in front of individuals either by themselves or by culture, society, or environment. From this definition, all of these factors prevent people from engaging in satisfying leisure experience. Walker & Virden (2005) noted that macro-level constraints on recreation such as gender or socioeconomic situation are themselves influenced by micro-level factors such as personality traits, personal experiences in participation as well as attitudes and beliefs.

Shaw (1994) thought that elderly people's leisure constraints could be concluded into time, economic, lack of opportunities, facilities and programs. Besides, psychological constraints intervened between the preference for an activity and leisure participation, which can lead to leisure non-participation (Edginton *et al.*, 2002). Dunpal and Barry's (1999) found two main exercise barriers among elderly, personal factors like fear of injury and social isolation and environmental difficulties like inconvenience to access and unfavorable weather. Nevertheless, the majority of older people believe they are already active enough to satisfy personal health. The diversity of findings has prompted a call for a more comprehensive understanding of the perceptions and meanings. Older adults attribute to physical activity, particularly that which is supposedly required for good health (Booth, *et al.*, 2002; Rejeski & Brawley, 2006; Satariano, *et al.*, 2000).

According to Carroll & Alexandris (1997) the motivation to participate in leisure activities decreases with age. Moreover, the elderly might be busy in caring for their grandchildren and housework (Juarbe *et al.*, 2002) and being married with a family means more time but with family constraints. Moreover, information constraints about the benefits of leisure activities may also be a contributing factor in lack of interest in participation in leisure activities. It is also known that degenerative medical ailments like arthritis, worsening of vision, depressive symptoms, high blood pressure, etc., are more prevalent with age which may lead to increase in distress and health constraints (Alexandris & Carroll, 1997).

### The Bottom Line

The dictum that 'it is better to wear out than to rust out' still resonates with gerontologists. Leisure is considered as a key ingredient for healthy ageing because leisure activities may lead to an improved quality of life and greater life satisfaction among ageing adults. It is necessary to appreciate the benefits one can gain by participating in leisure activities. It has been reported that individuals living with greater leisure activity have greater personal, physical, emotional, psychological, spiritual and social well-being and overall life satisfaction. Involvement in leisure activities may mitigate the impact that social, functional, and cognitive declines have on the quality of life of older individuals. Thus it is important to identify and eliminate the leisure constraints in ageing population in order to lead quality life and help them become active and healthy. Leisure and successful ageing are interrelated and the provision of leisure services has the potential to significantly contribute to the quality of life of older adults living within the community and within supported accommodation. To conclude, the available reviews conducted on leisure and ageing provides a convincing outcome for the importance of leisure for a healthy ageing process and thus the need arises for the governments and non-governments organizations to introduce and run intervention and policy programs for the growth and development of the ageing population.

Hope that the attempt on this platform is meaningful and fruitful and at the same time opens further avenues of continued dialogue on improving the lives of the elderly in each of our societies. Greater encouragement and enhancement towards the field of leisure can be done, especially in the context of developing countries.

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## Ageing and Psychophysiological Health

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### ABSTRACT

*Assessments on physiological (blood pressure, heart rate) and psychological (stress, anxiety, depression) measures were done on participants in five age-groups, viz., young (25-29 years), middle age-groups (30-39 years and 40-58 years), pre-retirement age (59-64 years), young-old (65-74 years) and the old-old (75 years and above). In each age-group there were 50 participants. The study led to the following conclusions: (1) people in the old-old age-group have higher systolic BP and heart rate than those in the pre-retirement age-group; (2) people in the young and middle age-groups have lower systolic and diastolic BP, and heart rate than those in the older age-groups; (3) people in the age-group of 40-58 years have the lowest levels of stress and anxiety as compared with the younger and older age-groups; (4) people in the young and middle age-groups have lower levels of stress and anxiety than those in the older groups; (5) people in various age-groups do not differ from one another in terms of depression.*

**Keywords:** Ageing, Age differences, Blood pressure, Heart rate, Stress, Anxiety, Depression.

Stiff and cut-throat competition, advancing technology, multi-tasking, high aspiration to become rich and famous, tendency to excel others, emphasis on achieving enormous materialistic gains coupled with decrease in moral values has led the modern life laced

with greed, opportunism and activism. Such a fast-moving, hectic and frenzied life-style has led to an increase of stress, anxiety and depression in the lives of many people. Such conditions persist throughout life in some people. Stress, anxiety and depression are the widely known psychological risk factors in the aetiopathogenesis of many cardiovascular and gastrointestinal diseases; the existing evidence is, however, more compelling for cardiovascular diseases.

The precipitation of myocardial infarction by psychological stress is well recognized; a frequent observation is that some emotionally stressful situation precedes such infarctions. Persistent emotional arousal may have an adverse, direct or indirect, effect on physical and mental health. Several other factors such as severe fatigue, anxiety, anger, hopelessness and loneliness have also been proposed to be precursors of sudden cardiac death (Engel, 1976; Kuller, 1978; Reich, *et al.*, 1981). Anxiety in both its acute and chronic forms is a central feature of most psychiatric illness. It has also been reported that cardiovascular reactivity is more pronounced in borderline hypertensive and hypertensive people (Rollnik & Kugler, 1999). Stern, *et al.*, (1977) reported 22 per cent of their CHD patients to be anxious. Billing *et al.*, (1980) identified 19 per cent of their sample (coronary patients) as anxious. Depression is also known to be associated with an increased risk of myocardial and other cardiac events (Carney *et al.*, 1975, 1987; Booth-Kewley & Friedman, 1987). Psychiatric patients with depression have a higher rate of myocardial infarction than those without depression. Greene *et al.*, (1972) reported that 33–50 per cent patients who die from an initial myocardial infarction suffer from depression for some time prior to infarction. Depression in the first twelve months after myocardial infarction had been found to be associated with increased mortality and morbidity (Garrity & Klein, 1975; Stern *et al.*, 1977). Patients with clinical depression are also at increased risk for mortality during and after cardiac surgery (Tufo & Ostfeld, 1968; Kimball, 1969). Duffy *et al.*, (1991) examined the magnitude of the relationship between stress events and clinical disorders in three categories of gastrointestinal diseases: inflammatory bowel disease, ulcerative colitis and Crohn's disease, and reported that stress-exposed subjects demonstrated increased risk of clinical episodes of disease than unexposed subjects. It is recognized that worry, repressed anger, resentment, anxiety, dependency and other

negative emotional states may be causally involved in gastrointestinal disorders. A high activity level has been found to be a frequent correlate of gastric lesion (Weiss, 1984). Hypnotically induced thoughts of anger and anxiety produce high gastric secretion, while thoughts of depression, hopelessness and helplessness produce low secretion (Kehoe & Ironside, 1963; Tennant, 1988; Walker *et al.*, 1990).

In the present study some indicators of psychophysiological health, viz., blood pressure, heart rate, stress, anxiety and depression were examined across the life-span commencing from young adulthood. Following a cross-sectional approach, the present study attempted to isolate young (25–29 years), middle age (30–39 years and 40–58 years), pre-retirement age (59–64 years), the young-old (65–74 years), and the old-old (75 years and above) groups. The participants in each age-group were administered personality scales to measure levels of stress, anxiety and depression. In addition, participants' blood pressure and heart rate were also assessed.

## Materials and Methods

### *Participants*

Male participants from six age-groups viz., 25–29 years, 30–39 years, 40–58 years, 59–64 years, 65–74 years, and 75 years and above, provided data for the present study. In each age-group there were 50 participants. These age-groups were selected to isolate young (25–29 years), middle age-groups (30–39 years and 40–58 years), pre-retirement age (59–64 years), young-old (65–74 years) and the old-old (75 years and above). People not suffering from any chronic disease qualified as participants.

### Materials

#### *Blood Pressure and Heart Rate*

Blood pressure (BP) and heart rate (HR) were recorded using an HEM-732 C-C1 (MX2) automatic digital portable blood pressure monitor (Omron Corporation, Tokyo, Japan). The Omron monitor detects blood pressure to an accuracy of  $\pm 2$  per cent and the pulse to an accuracy of  $\pm 5$  per cent of reading. Systolic and diastolic blood pressures, detected oscillometrically (Geddes, 1970; Drummond & Quah, 2001), were displayed digitally on the monitor's front panel to an accuracy of  $\pm 3$  mmHg. Cuff (480  $\times$  180mm) deflation was

approximately 5 mmHg/s. Heart rate was recorded automatically by counting the number of BP oscillations during each cycle of BP measurement. The BP and HR recordings were done three times with an interval of three minutes in between. With a view to deriving stable measures, averages of the three recordings for BP as well as HR were calculated and these averaged figures served as units of analysis for the present study.

### Stress

The Perceived Stress Scale (PSS; Cohen *et al.*, 1983) was used to determine perceived stress scores. The test measures the degree to which situations in one's life are appraised as stressful (Ibid.). This test consists of 14 items. Respondents are required to indicate for each statement on a 5-point Likert scale ranging from 0 (never) to 4 (very often) as to how they have felt or thought in line with the statement during the previous month. The scores on the test range from 0 to 56; higher scores indicating greater amount of stress. This test has been used in our earlier studies (Gupta *et al.*, 2002, 2007, 2010). Cronbach's alpha in the present study was .82.

### Anxiety

The Hindi version (Spielberger *et al.*, 1973) of the widely used trait scale of the State-Trait Anxiety Inventory (STAI; Spielberger *et al.*, 1970) was used to determine scores on trait anxiety. The trait scale of the STAI consists of 20 statements. Respondents are required to indicate for each item on a 4-point Likert scale ranging from 1 (almost never) to 4 (almost always) as to how they generally feel. The scores range between 20 and 80; higher scores indicating higher levels of anxiety. The internal consistency reliability of the Hindi version of the trait scale as reported by the authors range from .73 to .83 over periods ranging from 30 to 90 days. This Hindi version correlates well with other measures of trait anxiety;  $r = .61$  with the Hindi version of Taylor Manifest Anxiety Scale (Krishnan, 1966), and  $r = .71$  with another measure of Manifest Anxiety (Sharma, 1970). The Hindi version of the trait anxiety scale has been used extensively in India (Gupta, 1984; Sharma & Sharma, 1984; Gupta & Gupta, 1997, 2005, 2006; Gupta *et al.*, 2002, 2007, 2010). Cronbach's alpha in the present study was .84.

### *Depression*

The Beck Depression Inventory (BDI; Beck *et al.*, 1961) was used to determine depression scores. The BDI is a 21-item scale measuring attitudes and symptoms associated with various aspects of depression particularly the cognitive, behavioral, affective and somatic aspects. Respondents are required to tick one of the four alternatives, providing a score of 0 to 3 for each item. The scores on the total test thus range from 0 to 63; higher scores indicating greater severity of depressive symptomatology. This test has been used in many studies carried out in Indian setting (Gupta & Gupta, 1997, 2005, 2006; Gupta *et al.*, 2002, 2007). Cronbach's alpha in the present study was .86.

After the BP and HR recordings the PSS, the STAI and the BDI were administered on each participant. Each participant, tested individually, provided data on all measures; an interval of 5 minutes interposed between testing on any two measures. The order of electrophysiological recordings and the test administration was the same for all participants: BP, HR, PSS, STAI and BDI.

### **Results**

The means and standard deviations for the participants' scores on the physiological (systolic BP, diastolic BP, heart rate) and psychological (stress, anxiety, depression) measures were worked out and are reported in Tables 1–2. The significance of differences between means was tested by the *t*-test, the results are given in Tables 1–2.

#### *Psychological Measures (Table 1)*

*Systolic BP.* Participants in the young and middle age-groups (25–29 years, 30–39 years, 40–58 years) had significantly lesser systolic BP than those in the older groups (59–64 years, 65–74 years, 75 + years) except for a comparison between 30–39 years group vs 59–64 years group where the results were in the same direction but were statistically nonsignificant. The pre-retirement age-group (59–64 years) had also significantly lesser systolic BP than that of the 75+ years age-group.

*Diastolic BP.* Participants in the young and middle age-groups has significantly lesser diastolic BP than those of the older age-groups except for a comparison between the 40–58 years group vs 59–64 years group where the results were statistically nonsignificant.



**Table 1**  
*Blood Pressure and Heart Rate by Age (n = 50 in each age-group)*

Age-group	Systolic BP (mmHg)			Diastolic BP (mmHg)			Heart Rate (b.p.m.)		
	Mean	SD	t-test Differing Groups*	Mean	SD	t-test Differing Groups*	Mean	SD	t-test Differing Groups*
1. 25-29 years	122.36	10.5	1 from 4, 5, 6	71.32	5.8	1 from 4, 5, 6	70.29	4.6	1 from 4, 5, 6
2. 30-39 years	124.83	9.9	2 from 5, 6	71.59	5.1	2 from 4, 5, 6	69.85	4.8	2 from 4, 5, 6
3. 40-58 years	121.53	10.7	3 from 4, 5, 6	72.45	5.2	3 from 5, 6	71.45	5.1	3 from 6
4. 59-64 years	126.94	11.3	4 from 6	74.67	7.1		72.38	5.2	4 from 6
5. 65-74 years	130.74	11.7		75.23	7.6		72.51	5.4	5 from 6
6. 75+ years	132.89	12.9		76.14	8.2		74.98	6.7	

\* Significant at .05 level or better.

**Table 2**  
*Stress, Anxiety and Depression by Age (n = 50 in each age-group)*

Age-group	Stress			Anxiety			Depression		
	Mean	SD	t-test Differing Groups*	Mean	SD	t-test Differing Groups*	Mean	SD	t-test Differing groups*
1. 25-29 years	22.46	5.1	1 from 3	35.74	6.9	1 from 3	8.35	2.1	
2. 30-39 years	20.89	4.3	2 from 5, 6	33.62	6.2	2 from 4, 5, 6	7.91	1.9	
3. 40-58 years	19.31	4.1	3 from 4, 5, 6	32.58	5.9	3 from 4, 5, 6	7.79	1.9	
4. 59-64 years	22.69	4.9		36.81	7.2		8.56	2.1	
5. 65-74 years	23.14	5.4		37.53	7.1		8.49	2.3	
6. 75+ years	24.08	5.7		38.19	7.4		8.25	2.0	

\* Significant at .05 level or better

*Heart rate.* Participants in the 25–29 years and 30–39 years groups had significantly lesser heart rates than those in the older groups (59–64 years, 65–74 years, 75+ years). Participants in the 75+ group had higher heart rates than those in each of the remaining groups.

The interesting feature of the above results was that the old-old group had significantly higher systolic BP than the pre-retirement age-group; the old-old group had also higher heart rates than the pre-retirement and young-old groups. No such differences were found for diastolic BP.

### *Psychological Measures (Table 2)*

*Stress.* Participants in the middle age-group (40–58 years) experienced significantly less stress than the young age-group (25–29 years). This group experienced significantly less stress than the three older groups (59–64 years, 65–74 years, 75+ years). Similarly, the other middle age-group (30–39 years) experienced less stress than the 65–74 years and 75+ years groups. The three older groups did not differ significantly from one another.

*Anxiety.* Participants in the 40–58 years group had significantly lesser anxiety scores than the 25–29 years group. This group had also significantly lesser anxiety scores than the three older groups (59–64 years, 65–74 years, 75+ years). The other middle age-group (30–39 years) had lesser anxiety scores than the three older groups. The three older groups did not differ significantly from one another.

*Depression.* The depression scores of all the age-groups were comparable and they did not differ significantly from one another.

### **Discussion**

The results clearly demonstrate that the systolic BP and the heart rate increase in the old-old age-group (75+ years) when compared with that of the pre-retirement age-group (59–64 years). The increase in heart rate was also statistically significant in the old-old age-group than the young-old age-group. However, such increase for diastolic BP was not statistically significant. These results therefore suggest that ageing may lead to an increase in the physiological indices of behaviour especially the systolic BP and heart rate, whereas the results do not support any such increase in the psychological indices of behavior (stress, anxiety, depression).

The results (Table 2) also demonstrate that the participants in the young age-group (25–29 years) experience higher levels of stress and anxiety than those in the 40–58 years group. Obviously, the younger age-group people have to struggle hard, in the modern era of cut-throat competition, to find a suitable place in their professional career; they get fully settled by the time they reach the age-group of 40–58 years. Perhaps this is the reason that people in the age-group of 40–58 years experience minimum levels of stress and anxiety.

The finding of psychological indices of behavior remaining unaffected by ageing needs an explanation. This will be attempted in the following paragraphs.

Concerns about decreasing physical activity and activity avoidance are quite common in older people (Friedman *et al.*, 2002; Zijlstra *et al.*, 2011). Such concerns can lead to adverse physical, psychological and social consequences. Similarly, cognitive impairment and memory problems (particularly in the working memory) increase with age and become more pronounced in old age (especially the old-old age-group in the current study) (Trouton *et al.*, 2006; Montejo *et al.*, 2011). A recent study by Montejo *et al.*, (2011) demonstrates that subjective memory complaints (indicators of perceived experience of everyday forgetfulness) rose from 24 per cent in the 65–69 age-group to 57 per cent in the 90 and above group.

Cognitive impairment and memory problems as well as decrease in physical activity have been reported to be associated with stress, anxiety and depression (Rohling *et al.*, 2002; Mol *et al.*, 2008; Montejo *et al.*, 2011). A recent study shows that the percentage of subjects with memory complaints diagnosed with depression or anxiety was 52.8 per cent compared to 28.7 per cent for those without depression or anxiety (Montejo *et al.*, 2011).

Aged persons' active participation in cognitive restructuring and indulgence in cognitive activities, as was being done earlier, perhaps helps in offsetting some adverse effects of ageing. This is usually observed in an increased daily activity and improved interpersonal social relationships (Li *et al.*, 2005; Zijlstra *et al.*, 2011). Thus cognitive restructuring and indulgence in cognitive activities buffer the ageing effects, and may lead an aged person from activity avoidance to increased daily activity and improved interpersonal relationships which in a way are essential for healthy and successful ageing. Higher education may also offset the cognitive impairments occurring due to

ageing though the available evidence in this context is inconclusive (Comijs *et al.*, 2002).

In the present study only those persons participated who did not have any chronic disease. Quite possible, the participants in the young-old (65–74 years) and the old-old (75+ years) groups in the present study might have been actively participating in physical and cognitive activities as well as inter-personal social relationships, and this protected them to some extent from the age-related adverse consequences of anxiety and depression. However, this inference is simply based upon speculation. Controlled experimental studies are needed to specifically examine the role of such activities on stress, anxiety and depression during ageing.

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