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YOU ARE INVITED TO JOIN US

*We are Working to Protect the Rights and
Social Welfare of the Elderly*

Indian Gerontological Association (Registration No 212/ 1968) is an independent grassroots non-profit organization based in Jaipur (Rajasthan). Our efforts empower and support the underprivileged elderly in rural and urban communities.

We strive to ensure social justice and welfare for people over 60, focusing on those elders who are the most disadvantaged such as elderly women. We protect the civil liberties of elderly citizens as a part of the struggle for individual rights and social progress in India.

Currently, the elderly community comprises approximately 10% of the total population of India. This number will increase to nearly 25% within the next twenty years. Neglected and abandoned by society and sometimes their own families, elders are increasingly subject to conditions of disease and poverty. They lack access to health care, and often face serious discrimination as well as physical and emotional abuse.

As a public interest group, we work for and with the elderly to protect their rights and access to a better quality of life. We seek to both empower and serve by working directly with rural communities. By facilitating the growth of citizen's groups, raising public awareness on aging, promoting public action and participation, and advocating public policy changes, Indian Gerontological Association hopes to alter the current trends in elder relations for the better.

Our Work Includes

- Community Centers for the Elderly that Offer Communal Support and Interaction
- Training on Legal Rights by Offering the Elderly Practical Knowledge on Their Rights
- Public Hotline for the Elderly that Offers Legal Referrals and Assistance
- Public Accessibility for the Elderly Advocating More Available Access to the Public Sphere
- Use of various forms of media to Raise Public Awareness on Elder Rights
- Counselling and Helping elderly to Relieve Psychological Stress and Depression
- Elder Women's Cooperatives that Provide Grants and Assistance to Elderly Women
- Public Awareness Raising to Promote Public Action for Helping Disadvantaged Elderly
- Field Study of Rural Areas to Analyze Challenges Faced by Aging Rural Population

Our Plan of Action Includes

- Campaign for Elder Rights
- Campaign Against Elder Abuse especially toward Elderly Women
- Training of Social Workers and Caregivers
- Capacity Building of Civil Servants or organizations Working on Aging
- Research & Publication

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Effects of Swim Training in Cold on the Plasma and Erythrocytes of Ageing Rats

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ABSTRACT

This study was to evaluate the benefits of swimming in cold water ($20 \pm 2^\circ\text{EC}$) over thermo-neutral water ($30 \pm 2^\circ\text{EC}$) as a function of age in the plasma and erythrocytes of adult (3-mos), old-adult (12-mos) and middle-aged (18-mos) male Wistar rats. Swimmers in cold showed higher levels of haemoglobin and lower blood glucose than in the thermo-neutral water. The extent of decreases in total cholesterol, low density lipoprotein cholesterol and triglyceride levels were high among cold swimming trainees. Further, the activities of catalase and superoxide dismutase in the erythrocytes were higher in the cold water swimming trainees than in the thermo-neutral trainees. Cold also reduced the malondialdehyde and protein carbonyl levels. The benefits of swim training over the sedentary was related to swim temperature and explains a better adaptive capacity in swimmers in cold, wherein cold as an effective hormetic mild stressor can evoke better protective responses in the erythrocytes and plasma lipid profile than that seen in the thermo-neutral swimmers. However, the magnitude of these responses is age-related.

Key Words: Age, Glucose, Haemoglobin, lipid profile, Oxidative stress, Swim training

The effects of physical exercise on the blood constituents have been documented in humans as well as animals. It is reported that the hematological and physical properties of blood are altered after a strenuous exercise (Yalcin, *et al.*, 2000). Erythrocytes are exposed to reactive oxygen species (ROS) that are constantly generated from internal and external sources even under thermo-neutral conditions. It is also known that the erythrocytes contain antioxidant enzymes (AOEs) such as superoxide dismutase (SOD), glutathione peroxidase (GPx) and catalase (CAT), as well as non-enzymatic antioxidants such as vitamin E, vitamin C, glutathione and ceruloplasmin, suggesting a high antioxidant defense capacity (e.g., Kurata, *et al.*, 1993). During their relatively short lifespan wherein no protein synthesis occurs, erythrocytes are adversely affected by free radical-induced ROS. An earlier study on rats trained to swim with moderate intensity at thermo-neutral temperature of $30 \pm 2^\circ\text{C}$ was demonstrated to alter the plasma lipid profile in the middle-age and old rats (Asha Devi, *et al.*, 2003; Kiran, *et al.*, 2004). It is now realized that cold water swimming is beneficial over thermo-neutral water in terms of improving the peripheral vasculature and in redistribution of the blood to vital organs. However, it is necessary to evaluate the possible effects of cold water swimming on the blood due to the practice of cryotherapy leading to improved vasculature in sports medicine. The present study on aging rats was aimed at elucidating the effects of swim training in cold on the (i) Hb and glucose levels, (ii) plasma lipid profile and (iii) on the oxidative stress indices and antioxidant defense in the erythrocytes.

Materials and Methods

All procedures involving animals were approved by the Institutional Animal Ethical Committee (IAEC), Bangalore University, Bangalore.

Animal Maintenance and Care

The study comprised of male albino rats of *Wistar* strain of 3, 12, and 18 months (adult, old-adult and middle-aged) age. Initially rats of 3–4 months of age and of equal body mass were obtained from the Central Animal Facility, IISc. Bangalore and maintained until they were of 12 (old adult) and 18 months (middle-age) of age. Animals were

housed three per cage, in polypropylene fitted steel mesh-bottom cages and were maintained at a temperature of $28 \pm 1^\circ\text{C}$ and under a 12-h of dark and light cycle. All animals had free access to feed (Amruth feeds, India) and tap water *ad libitum*. They were grouped in to two exercise-trained groups ($n = 5$), (i) swim-trainees in thermo-neutral temperature [SW-T(N) $30 \pm 2^\circ\text{C}$] (ii) swim trainees in cold, $20 \pm 2^\circ\text{C}$ [SW-T(C)] and a sedentary group [SE-C (N)]. At the beginning of the training regimen, the mean body mass of various groups did not differ significantly. Swim training was essentially the same as described earlier (Asha Devi, *et al.*, 2003) with minor modifications. In brief, rats were made to swim in circular tanks with a load of 3 per cent of body mass tied to their tails and for a total period of 6 weeks with five training days/week.. Initially they were made to exercise for 5 min/day with a progressive increase to 30 min/day over a period of 1 week and thereafter for 30 min/day for 6 weeks. Weekly body mass were recorded along with their endurance capacity by the method of Dawson, *et al.*, (1968).

Blood Sampling and Erythrocytes Isolation

Animals were anaesthetized with ether, restrained in dorsal recumbence, and blood was drawn from the tail for weekly glucose estimation. Cardiac puncture was performed as a terminal procedure to collect blood for all the blood related parameters. Blood was carefully drawn from the rat heart in 1 per cent EDTA-coated tubes and erythrocytes were isolated (Dodge, *et al.*, 1963). The erythrocytes were isolated by centrifuging one ml of blood in a fixed angle rotor (No. 1) (RV/FM, Superspin, Plastocrafts, India) at 1,000 g and 4°C for 20 min. The plasma used for estimating total cholesterol (TC), triglyceride (TG), and high density lipoprotein cholesterol (HDL-C). The pellet containing the erythrocytes were washed thrice with 310 mOsm isotonic phosphate buffer (pH 7.4), centrifuged at 1,000 g and finally suspended in an equal volume of isotonic phosphate buffer. This constituted the erythrocyte suspension, which was stored at 4°C until further analysis.

Blood

Haemoglobin (Hb): Hb was measured by the cyanomethaemoglobin method (Crosby, *et al.*, 1954) using Hemocor-D Kit (Coral Clinical Systems, Goa, India). Glucose was

measured using Accu-Chek Active-blood glucose monitor (Roche Diagnostics India Pvt. Ltd.)

Plasma

1. Lactate (La) was measured by the method of Barker and Summerson (1941).
2. Lipid profile: Total cholesterol (TC), high density lipoprotein cholesterol (HDL-C) and triglycerides (TG) were measured using COGENT kit, (Span diagnostics limited, India).

Erythrocytes

1. Antioxidant enzymes: Superoxide dismutase (SOD, EC 1.15.1.1) activity was measured by the method of Misra and Fridovich (1972) and catalase (CAT, EC 1.11.1.6) activity by the method of Aebi (1984).
2. Oxidative stress indices: Malondialdehyde (MDA), a product of lipid peroxidation (LPO) was determined as described by Ohkawa, *et al.*, (1979) while protein carbonyl level, a product of protein oxidation was measured by the method of Levine, *et al.*, (1990).

Measurement of Protein

Protein content was determined by the method of Lowry, *et al.*, (1951).

Statistical Analyses

All results are expressed as mean $\pm$ S.E of five animals/sub-group. Changes in body mass were tested using Student's t-test. All other parameters were subjected to two-way ANOVA and further tested by Bonferroni *Post hoc* test using Graphpad Prism Software . Probability values of $p < 0.05$ was considered significant.

Results

The final body mass of the swim trained was lesser than those of the sedentary ones with the magnitude of decrease being less in the cold water-swim trainees than the thermo-neutral trainees (Table 1). With training, the endurance increased from the first week to ninth week regardless of age. However, the extent of endurance was lesser in the cold than in the thermo-neutral water (Table 2).

Table 1
*Changes in the Body Mass (gms) as a Function of Age and Swim
 Exercise Training in the Cold Water*

Sub-groups	Age (months)		
	3	12	18
SE-C	231.0 ± 19	419.0 ± 0.10	490.6 ± 4.2
SW-T(N)	178.3 ± 9.2*	300.8 ± 13.0*	406.6 ± 4.0*
SW-T(C)	174.3 ± 11.5*	356.6 ± 10.7*	423.6 ± 1.4*

Values are mean ± SE of 5 rats/sub-group. SE-C, sedentary control; SW-T(N), swimmers in thermo-neutral water; SW-T(C), swimmers in cold water. Significance was tested by Student's t-test and is compared with the SE-C(N). * $p < 0.001$

Table 2
Endurance (minutes) in Swim Trainees and as a Function of Age in Rats

Weeks of Swimming	Age(months)					
	3 ^A		12 ^B		18 ^C	
	SW-T(N)	SW-T(C)	SW-T(N)	SW-T(C)	SW-T(N)	SW-T(C)
1.	30 ± 0.01 ^a	20 ± 0.23 ^a	30 ± 0.21 ^a	15 ± 0.21 ^a	15 ± 0.01 ^a	9 ± 0.31 ^a
5.	60 ± 0.21 ^b	25 ± 0.64 ^b	60 ± 0.10 ^b	30 ± 0.65 ^b	23 ± 0.63 ^b	10 ± 0.27 ^a
9.	125 ± 0.0 ^c	45 ± 0.30 ^c	110 ± 0.20 ^c	41 ± 0.61 ^c	35 ± 0.01 ^c	20 ± 0.90 ^c

Values are mean ± SE of 5 rats/sub-group. Significance between group means was evaluated by two-way ANOVA followed by Bonferroni test ($P < 0.05$), and represented by upper case between the ages and lower case between the sub-groups. All other abbreviations are similar to Table 1.

Blood

Haemoglobin and Glucose

Hb level increased by 28 per cent, 24 per cent and 26 per cent among the thermo-neutral swimmers and by 52 per cent, 59 per cent, 44 per cent among the cold water swimmers with regard to the respective sedentary rats in the 3, 12 and 18 months old. Blood glucose level showed a significant reduction in rats that swam in the thermo-neutral temperature and was by 12 per cent, 12 per cent and 10 per cent and in the cold by 33 per cent, 32 per cent and 28 per cent compared to the sedentary among the 3, 12 and 18 months old rats (Table 3).

Table 3
*Interaction of Age and Swim Exercise in Cold Water on the
 Blood Glucose and Haemoglobin*

Sub-groups	Age(months)		
	3 ^A	12 ^B	18 ^C
Glucose(mg/dl)			
SE-C	98 ± 0.46 ^a	108 ± 0.92 ^a	120 ± 0.92 ^a
SW-T(N)	86 ± 0.46 ^b	95 ± 1.30 ^b	108 ± 0.46 ^b
SW-T(C)	65 ± 0.47 ^c	73 ± 0.46 ^c	86 ± 0.46 ^c
Hb(g/dl)			
SE-C	12.1 ± 0.01 ^a	11.3 ± 0.05 ^a	10.7 ± 0.06 ^a
SW-T(N)	15.5 ± 0.01 ^b	14.0 ± 0.02 ^b	13.5 ± 0.03 ^b
SW-T(C)	18.4 ± 0.10 ^c	18.0 ± 0.01 ^c	15.5 ± 0.06 ^c

Values are mean ± SE of 5 rats/sub-group. Significance between group means was evaluated by two-way ANOVA followed by Bonferroni test ($P < 0.05$), and represented by upper case between the ages and lower case between the sub-groups. For abbreviations refer to Table 1.

Plasma

TC, LDL-C and TG increased progressively with age and among the trained swimmers, the TC levels were reduced by 30 per cent, 25 per cent and 19 per cent and by 49 per cent, 46 per cent and 33 per cent in rats that swam in thermo-neutral and cold temperatures respectively. The TG levels showed decreased levels by 25 per cent, 20 per cent and 14 per cent among the swim trainees. In the cold, however, the levels reduced further by 47 per cent, 45 per cent and 39 per cent in the 3, 12 and 18 months old trainees. Similarly, the LDL-C increased with age and swim training in thermo-neutral water reduced the levels by 49 per cent, 35 per cent and 26 per cent and by 84 per cent, 73 per cent and 66 per cent in the cold swimmers of 3, 12 and 18 months old rats. Unlike the TC, LDL-C and TG, HDL-C increased progressively with age. However, HDL-C increased in response to training and the increase was by 77 per cent, 66 per cent and 51 per cent in swimmers in thermo-neutral water with a further increase by 84 per cent, 73 per cent and 65 per cent among the swimmers in the cold water of the 3, 12- and 18 months old rats. Total TC/HDL-C ratio was substantially lower in the rats trained in thermo-neutral and cold water compared to the sedentary.

Age-related increase in plasma lactate was reduced on swim training. However, the extent of reduction was higher in the cold swimmers compared to the thermo-neutral swimmers (Table 4) compared to the sedentary values. In the middle-aged animals, La reduced by 44.5 per cent while the adults showed 72 per cent reduction in cold water.

Table 4
Plasma Lipid Profile and Lactate as a Function of Age and Swim Exercise Training in Cold Water

Sub-groups	Age(months)		
	3 ^A	12 ^B	18 ^C
TC(mg/dl)			
SE-C	146.6 ± 0.21 ^a	160.1 ± 0.52 ^a	160.0 ± 0.40 ^a
SW-T(N)	113.5 ± 0.34 ^b	119.6 ± 0.28 ^b	128.2 ± 0.17 ^b
SW-T(C)	70.0 ± 0.24 ^c	85.8 ± 0.25 ^c	88.5 ± 0.24 ^c
TG (mg/dl)			
SE-C	70.0 ± 0.25 ^a	84.6 ± 0.90 ^a	94.0 ± 0.21 ^a
SW-T(N)	52.6 ± 0.92 ^b	68.4 ± 0.32 ^b	80.0 ± 0.27 ^b
SW-T(C)	37.0 ± 0.35 ^c	46.5 ± 0.30 ^c	57.0 ± 0.30 ^c
LDL-C (mg/dl)			
SE-C	96.0 ± 0.19 ^a	116.0 ± 0.36 ^a	110.0 ± 0.14 ^a
SW-T(N)	45.0 ± 0.12 ^b	68.0 ± 0.10 ^b	79.0 ± 0.98 ^b
SW-T(C)	15.0 ± 0.77 ^c	45.0 ± 0.12 ^c	26.0 ± 0.15 ^c
HDL-C (mg/dl)			
SE-C	27.8 ± 0.01 ^a	27.0 ± 0.36 ^a	24.0 ± 0.16 ^a
SW-T(N)	36.8 ± 0.36 ^b	32.0 ± 0.17 ^b	28.1 ± 0.80 ^b
SW-T(C)	48.0 ± 0.77 ^c	45.0 ± 0.12 ^c	38.0 ± 0.27 ^c
Lactate (mM/L)			
SE-C	2.67 ± 0.08 ^a	2.96 ± 0.06 ^a	3.14 ± 0.20 ^a
SE-C(N)	1.78 ± 0.10 ^b	1.98 ± 0.01 ^b	2.67 ± 0.08 ^b
SW-T(C)	0.71 ± 0.05 ^c	0.82 ± 0.00 ^c	1.74 ± 0.01 ^c

Values are mean ± SE of 5 rats/sub-group. Significance between group means was evaluated by two-way ANOVA followed by Bonferroni test ($P < 0.05$), and represented by upper case between the ages and lower case between the sub-groups. For abbreviations refer to Table 1.

Antioxidant Enzymes in Erythrocytes

Increases in the SOD activity by 33 per cent, 27.5 per cent and 19 per cent, and by 62 per cent, 54 per cent and 64 per cent in rats trained

to swim in thermo-neutral and cold water were observed among the 3, 12 and 18 months old respectively. Similarly, CAT activity showed increase in the swim trained and the extent of increase was by 17 per cent, 13 per cent and 17 per cent, and by 50 per cent, 34 per cent and 29 per cent among the 3, 12 and 18 months old that were trained in thermo-neutral and cold water respectively (Table 5)

Table 5
Erythrocyte Antioxidant Enzymes and Oxidative Stress Indices as a Function of Age and Swim Exercise in Cold Water

Sub-groups	Age (months)		
	3A	12 B	18C
SOD activity (U/g Hb)			
SE-C	2,425 $\pm$ 7.5 ^a	2,646 $\pm$ 9.0 ^a	2,944 $\pm$ 8 ^a
SW-T(N)	3,234 $\pm$ 2.8 ^b	3,375 $\pm$ 10 ^b	3,528 $\pm$ 12 ^b
SW-T(C)	3,926 $\pm$ 10 ^c	4,086 $\pm$ 20 ^c	4,848 $\pm$ 28 ^c
CAT activity (mM/mg protein/min)			
SE-C	0.178 $\pm$ 0.00 ^a	0.21 $\pm$ 0.01 ^a	0.317 $\pm$ 0.06 ^a
SW-T(N)	0.209 $\pm$ 0.04 ^b	0.24 $\pm$ 0.01 ^b	0.372 $\pm$ 0.04 ^b
SW-T(C)	0.267 $\pm$ 0.00 ^c	0.29 $\pm$ 0.02 ^c	0.410 $\pm$ 0.02 ^c
MDA (nm/g Hb)			
SE-C	7.24 $\pm$ 0.05 ^a	13.5 $\pm$ 0.22 ^a	15.80 $\pm$ 0.24 ^a
SW-T(N)	4.64 $\pm$ 0.06 ^b	9.87 $\pm$ 0.01 ^b	10.57 $\pm$ 0.03 ^b
SW-T(C)	2.52 $\pm$ 0.10 ^c	6.30 $\pm$ 0.11 ^c	7.10 $\pm$ 0.04 ^c
PrC (nM/mg protein)			
SE-C	1.47 $\pm$ 0.02 ^a	1.81 $\pm$ 0.20 ^a	2.31 $\pm$ 0.04 ^a
SW-T(N)	0.70 $\pm$ 0.06 ^b	1.03 $\pm$ 0.03 ^b	1.55 $\pm$ 0.02 ^b
SW-T(C)	0.34 $\pm$ 0.03 ^c	0.71 $\pm$ 0.01 ^c	0.92 $\pm$ 0.02 ^c

Values are mean $\pm$ SE of 5 rats/sub-group. Significance between group means was evaluated by two-way ANOVA followed by Bonferroni test ($P < 0.05$), and represented by upper case between the ages and lower case between the sub-groups. For abbreviations refer to Table 1.

Oxidative Stress Indices in Erythrocytes

LPO in the erythrocytes was assessed by measurement of MDA levels. MDA level decreased in response to swimming training by 36 per cent, 25 per cent and 21 per cent in the 3, 12 and 18 months old. Further decreases by 65 per cent, 52 per cent and 47 per cent were seen in those swimming in cold water compared to the sedentary.

Protein oxidation in terms of PrC level in the erythrocytes showed higher decrease by 77 per cent, 60 per cent and 60 per cent in the cold water swim trained as compared to 52 per cent, 40 per cent and 33 per cent in the thermo-neutral water swim trainees among the 3, 12 and 18 months old respectively (Table 5).

Discussion

Endurance training performed by older persons in comparison to the younger ones with the same body mass index (BMI) and active mass percentage leads to higher O₂ consumption in older subjects. However, exercise training is beneficial to general health and protects cells against deleterious effects of ROS produced during physical effort (Cesquini, 1999). In this study, the body mass was reduced in response to training with no difference between the two temperatures among the adults. However, the old-adult and middle-aged cold water swimmers showed higher body mass compared to those of the thermo-neutral swimmers and is in accordance to our earlier findings (Prathima and Asha Devi, 1999). Low body mass may reflect a reduction in the swim performance and endurance capacity in cold for the same intensity and duration and is in accordance with that reported for temperatures below the body temperature (Dawson, *et al.*, 1968). Further, the lower La levels in the middle-age rats swimming in cold suggests that lesser production of La in the working muscles and that swim training in cold water induces cold adaptability. Results also showed reduced blood glucose in cold-water swimmers in the old-adult and middle-aged rats. Studies on humans have shown that cold-water swimmers at high intensity, unlike the moderate intensity in the current study, have elevated blood glucose levels possibly because of an imbalance in the release of glucose from the liver and its uptake by the muscles (Camachom, *et al.*, 2005). Our results on higher extent of increase in Hb in the cold-swim trainees compared to the thermo-neutral swimmers may be related to increased O₂ transport in cold (Daniel, *et al.*, 1986).

Reduced plasma TG, LDL-C and TC in the cold swim trainees compared to the thermo-neutral swimmers is similar to that reported by Osorio, *et al* (2003) on the TG and LDL-C in their studies on 2.5 months old female swimmers at 22EC and 35EC. The lower TG level in our animals may possibly be due to an increased TG uptake by the working muscles (Ibid.) and perhaps to lower corticosterone levels

leading to a lipolytic effect in the cold (Mc Murray, *et al.*, 1988). Our study has demonstrated improved SOD and CAT activities in the erythrocytes of cold water swim trainees with concomitant reductions in the MDA and PrC levels. Although it is reported that catalase has no direct role in alleviating OS under stress, it may slow down the depletion of glutathione (GSH) in erythrocytes under conditions of increased heme degradation and liberation of H_2O_2 (Nagababu, *et al.*, 2003). In a study by Nayanatara, *et al.*, (2005) on male rats subjected to short-term swim exercise for 7 days at 20EC reported an increase in free radical generation leading to increased LPO with lowered antioxidant defense in several other organs such as the brain and heart which unlike our trained rats in the present study may be due to an incomplete adaptation to cold stress. The present study is somewhat analogous to studies on repeated winter swimming in humans wherein an improved activity of SOD, CAT and GSH in the erythrocytes (Siems, *et al.*, 1999) and that a mild undamaging OS may be exerting a hormetic effect.

In summary, cold swim training is more beneficial in the old-adult and middle-aged compared to the adult. However, a limitation of our study is the absence of a comparison with responses to swimming in cold and thermo-neutral water of the untrained animals. Further experiments are underway on studies in the untrained since a single bout of swim either in the cold or thermo-neutral water may limit the observed adaptive responses in the trained more so in the aged.

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Health Status of Elderly: Evidence from India and Japan

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ABSTRACT

Health status is an important indicator of the quality of life of the elderly. Ageing increases the proportion of elderly with increased morbidities and functional disability. Addressing this issue has major implications for the government as well for the elderly in areas of socio economic and health conditions in all the societies of the world. This issue is particularly alarming for India and Japan due to the higher share of elderly in the population. Japan provides an interesting example in gerontological research due to its experience in handling the health issues of elderly as it has the most aged society in the world. Given the rapid ageing of population and increased life expectancy, it is imperative to assess the population's relative level of chronic morbidities and functional disabilities in order to assess the level of need of medical care and assistance to the elderly. This study examines the incidence of chronic morbidities and functional health of the elderly in India and Japan. Findings of the study indicated the better health status of Japanese elderly compared to India in terms of incidence of chronic morbidities and functional health. The study has provided substantial empirical information with regard to the health status of elderly in India and Japan.

Key Words: Chronic morbidities, Functional health; Socioeconomic factors

Good health is crucial for the elderly to maintain independence, autonomy and to remain productive that leads to improved quality of life in their old age. Assessment of the incidence of chronic morbidities and functional health of elderly people is one of the key factors in determining future preventive and long term care policies along with the development of appropriate assistive technology by the government.

The study presented here appraises evidence from Japan and India. In Japan, by 2010, the population of elderly citizens (65 years and over) was 29.29 million, constituting 23.1 per cent of the total population marking record highs both in terms of number and percentage. Japan's life expectancy remains the highest in the world (86.39 years for women and 79.64 years for men in 2010) (Ministry of Internal Affairs and Communications, 2011). India is the second populous country in the world, with 99.87 million persons above 60 years of age, constituting 8.3 per cent of the total population (Census of India, 2011).

Both Japan and India are challenged with facing with varied health issues of elderly, addressing which has significant research implications.

Realizing this, present investigation has been undertaken with the following objectives:

1. To understand the socioeconomic background of the elderly in India and Japan.
2. To study the chronic morbidities of elderly in the two countries.
3. To assess the functional health status of elderly in both countries, and
4. To find out the factors associated with the chronic morbidities and functional health of the elderly.

Method

The areas for the study were selected using multi stage random sampling technique. Out of the eight regions in Japan, Kanto region was selected to conduct the study. Out of the 7 prefectures in Kanto region, three prefectures, namely-Tokyo, Saitama and Chiba were selected using random sampling technique. Each prefecture comprised of wards ranging from 6–23 and two wards were selected randomly from each prefecture to draw the sample.

In India, out of 28 states, the state of Kerala was selected to carry out the study. Out of the 14 districts in Kerala, three districts, namely—Thiruvananthapuram, Thrissur and Alappuzha were selected randomly. Each district comprised of wards ranging from 50–100. From each of the three districts, two wards were selected randomly to draw the sample. From both countries, 50 respondents (25 males and 25 females) were identified from each ward using random sampling technique from the voter's list of respective wards. Therefore, the sample consisted of 600 elderly aged 60 years and above, i.e., 300 (150 males and females) from each country.

Tools Used

Interview schedule was used to study the socioeconomic background of the respondents. A check list was prepared and used to examine the incidence of chronic morbidities and the functional health of the elderly.

To analyze the socioeconomic background of the respondents, the variables examined were age group, educational qualifications, employment status, financial independence and living arrangement of the respondents.

To study the chronic morbidities, the incidence of twelve chronic morbidities was examined. Functional health of the elderly was assessed based on seven functional activities related to daily life. The degree of difficulty in carrying out these activities was examined.

Results and Discussion

Socioeconomic Background of the Respondents

Sixty per cent of respondents from Japan and 54 per cent from India belonged to the age group of 60–69 years (Table 1). Highly significant difference was observed on the educational levels of respondents in the two countries. Among Indian respondents, 60 per cent had education between 7th to 9th standard. Among Japanese, 30 per cent had bachelor's degree. Japanese elderly had better educational qualifications compared to India (Table 2). Among Indian respondents, 26 per cent and among Japanese 43 per cent were employed (Table 3). Further breakdown of employment status revealed that 26 per cent of males and 11 per cent of females joined a new job after retirement in Japan. Thus, it is evident that the employment rate of elderly respondents is high in Japan compared to India. In Japan, many elderly keep working even after retirement.

Financial independence was high among Japanese compared to Indians (66% vs. 40%). Significant difference was observed between the two countries on this respect (Table 4). Significant difference was observed for patterns of living arrangement between the two countries. In India, 48 per cent of respondents lived with 'spouse and children' against 33 per cent in Japan. In Japan, the main pattern of living arrangement was 'living with spouse' (37%). In India 30 per cent of respondents was living with 'only children' against 10 per cent in Japan. The proportion of respondents who 'lived alone' was more in Japan compared to India (15% Vs 5%) (Table 5).

Table 1
Distribution of Respondents by Age Group

<i>Age Group</i>	<i>INDIA</i>			<i>JAPAN</i>		
	<i>F</i>	<i>M</i>	<i>Total</i>	<i>F</i>	<i>M</i>	<i>Total</i>
60–69	81(54)	82 (55)	163(54)	91 (61)	90 (60)	181 (60)
70–79	47 (31)	47 (31)	94 (31)	42 (28)	48 (32)	90 (30)
80+	22 (15)	21 (14)	43 (14)	17 (11)	12 (8)	29 (10)
Total	150	150	300	150	150	300

Figures in parentheses denote percentage

Table 2
Educational Qualifications of the Respondents

<i>Education</i>	<i>INDIA</i>			<i>JAPAN</i>		
	<i>F</i>	<i>M</i>	<i>Total</i>	<i>F</i>	<i>M</i>	<i>Total</i>
Illiterate	20 (13)	7 (5)	27 (9)	0 (0)	0 (0)	0 (0)
7–9	107 (71)	74 (49)	181 (60)	27 (18)	32 (21)	59 (20)
10–12	12 (8)	42 (28)	54 (18)	54 (36)	33 (22)	87 (29)
Vocational school	1 (0.7)	2 (1)	3 (1)	20 (13)	10 (7)	30 (10)
Diploma	0	3 (2)	3 (1)	22 (15)	2 (1)	24 (8)
Bachelor's	6 (4)	18 (12)	24 (8)	25 (17)	64 (43)	89 (30)
Masters	1 (0.7)	4 (3)	5 (2)	2 (1)	9 (6)	11 (4)
Others	3 (2)	0	3 (1)	0	0	0
Total	150	150	300	150	150	300

Chi square=8.24164E-32**

P=1

Level of significance=0.01

Figures in parentheses denote percentage

Table 3
Distribution of Respondents by Employment Status

<i>Particulars</i>	<i>India</i>			<i>Japan</i>		
	<i>F</i>	<i>M</i>	<i>Total</i>	<i>F</i>	<i>M</i>	<i>Total</i>
Employed	8(5)	22 (15)	30 (10)	21 (14)	17 (11)	38 (13)
Retired and joined a new Job	1 (0.7)	6 (4)	7 (2.34) 26%	16 (11)	39 (26)	55 (18) 43%
Self employed	9 (6)	31 (21)	40 (13.34)	16 (11)	19 (13)	35 (12)
Retired	53 (35)	89 (59)	142 (47)	79 (53)	75 (50)	154 (51)
Never employed	79 (53)	2 (1)	81 (27)	18 (12)	0	18 (6)
Total	150	150	300	150	150	300

Figures in parentheses denote percentage.

Table 4
Status of Financial Independence of Respondents

<i>Particulars</i>	<i>India</i>	<i>Japan</i>
Independent	121(40)	198(66)
Dependent	179(60)	102(34)
Total	300	300

Chi square—2.98279E-10**

P-0.99998622

Level of significance-0.01

Figures in parentheses denote percentage

Table 5
Type of Living Arrangements of the Respondents

<i>Living Arrangements</i>	<i>INDIA</i>			<i>JAPAN</i>		
	<i>F</i>	<i>M</i>	<i>Total</i>	<i>F</i>	<i>M</i>	<i>Total</i>
Living alone	9 (6)	7 (5)	16 (5)	32 (21)	12 (8)	44 (15)
Living with spouse	10 (7)	28 (19)	38 (13)	51 (34)	60 (40)	111 (37)
Living with spouse and children	49 (33)	95 (63)	144 (48)	39 (26)	61 (41)	100 (33)
Living only with children	72 (48)	17 (11)	89 (30)	20 (13)	10 (7)	30 (10)
Living with other family members	10 (7)	3 (2)	13 (4)	8 (5)	7 (5)	15 (5)
Total	150	150	300	150	150	300

Chi square—8.60183E-18**

Probability—1

Level of significance—0.01

Figures in parentheses denote percentage

Chronic Morbidities

Significant differences were observed between the two countries in the incidence of chronic morbidities like diabetes, arthritis, blood pressure, asthma, peptic ulcer and liver diseases (Table 6). Japanese had lower occurrence of chronic diseases like diabetes, heart diseases, blood pressure, asthma and arthritis compared to India. The incidence of 'peptic ulcer' and 'liver diseases' were more among Japanese (10% and 8%) compared to India (1% and 0.3% respectively).

In spite of the divergence in the distribution of number of respondents reporting specific diseases, it is interesting to note the similarity in the leading diseases. This indicates that blood pressure, diabetes, arthritis, and asthma constitute the top ranking afflictions in both countries.

Srinivasan, *et al.*, (2010) also found that the leading chronic diseases among the Indian elderly were hypertension, diabetes, arthritis and coronary artery diseases. In India, a study by Kerala State Planning Board (2009) revealed that the major common chronic diseases among elderly were hypertension, arthritis, diabetes and asthma/bronchitis.

Murata, *et al.*, (2010) reported that the leading chronic illnesses suffered by the Japanese elderly were hypertension, arthritis, heart disease and diabetes.

Table 6
Chronic Morbidities of the Respondents

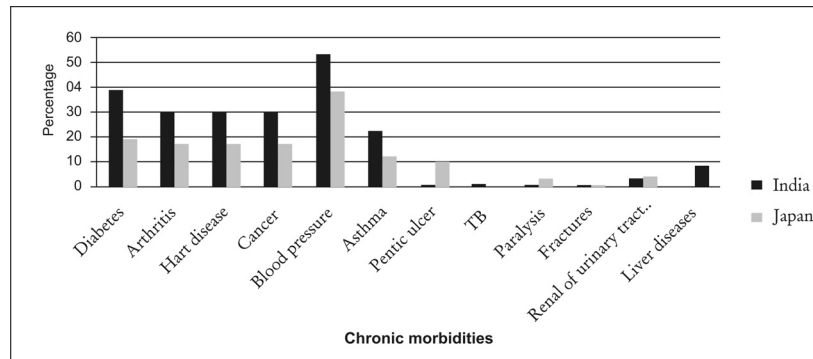
Chronic Morbidities	India			Japan			Chi square	P
	F	M	Total	F	M	Total		
Diabetes	68 (45)	50 (33)	118 (39)	15 (10)	42 (28)	57 (19)	4.28021E-08**	0.999835
Arthritis	39 (26)	50 (33)	89 (30)	38 (25)	13 (9)	51 (17)	0.000245*	0.987523
Heart disease	11 (7)	23 (15)	34 (11)	9 (6)	10 (7)	19 (6)	0.030934	0.860388
Cancer	9 (6)	3 (2)	12 (4)	5 (3)	10 (7)	15 (5)	0.554657	0.456421
Blood pressure	88 (59)	72 (48)	160 (53)	47 (31)	66 (44)	113 (38)	0.000117**	0.991385
Asthma	41 (27)	26 (17)	67 (22)	16 (11)	21 (14)	37 (12)	0.001214*	0.972201
Peptic ulcer	2 (1)	1 (0.7)	3 (1)	9 (6)	22 (15)	31 (10)	7.65021E-07**	0.999302
TB	1 (0.7)	1 (0.7)	2 (0.7)	0	1 (0.7)	1 (0.3)	0.562725	0.453164
Paralysis	1 (0.7)	3 (2)	4 (1)	5 (3)	3 (2)	8 (3)	0.243443	0.62173
Fractures	1 (0.7)	3 (2)	4 (1)	3 (2)	1 (0.7)	4 (1)	1	0.317311
Renal or urinary tract ailments	4 (3)	4 (3)	8 (3)	3 (2)	10 (7)	13 (4)	0.266698	0.605556
Liver diseases	0	1 (0.7)	1 (0.3)	4 (3)	20 (13)	24 (8)	2.6152E-06**	0.99871

**Significant at 0.01 level

*Significant at 0.05 level

Figures in parentheses denote percentage

Figure 1
Chronic Morbidities of Respondents



Functional Health of the Elderly

Functional health is the ability to carry out activities and tasks that people do on a daily basis. Measuring disabilities is important because of its association with decreased functional autonomy and the increased demand for long-term care' (Alam and Mukherjee, 2005).

The degree of difficulty to perform each functional activity of the respondents was recorded on a four point continuum. These were 'not difficult at all', 'slightly difficult', 'extremely difficult' and 'cannot do at all', with a score value of 1, 2, 3 and 4 respectively.

Significant differences were observed between Indian and Japanese respondents on all the items of functional activities (given in Table 7). The degree of functional disabilities was high among respondents from India compared to Japan. Proportion of respondents who reported 'not difficult at all' in performing all the specified items of functional activities was high in Japan compared to India (Table 7). Among Indian elderly, the items for which the highest proportion of respondents expressed 'extreme difficulty' were for 'lifting an object weighing approximately 10 kg' (28%) and 'climbing 2-3 flights of stairs' (22%). Moreover, the items for which the highest proportion of respondents reported 'cannot do at all' were for 'climbing 2-3 flights of stairs' (16%) and lifting an object weighing approximately 10 kg (8%).

Table 7
Functional Abilities of the Respondents

Functional Activities	INDIA			JAPAN			Chi square	P		
	Not difficult at all	Slightly difficult	Extremely difficult	Not difficult at all	Slightly difficult	Extremely difficult				
Stand continuously for 15 minutes	160 (53)	108 (36)	25 (8)	7 (2)	265 (88)	31 (10)	4 (1)	0	2.37E-20**	1
Walk about 200-300 meters	122 (41)	127 (42)	41 (14)	10 (3)	266 (89)	25 (8)	9 (3)	0	1.4E-33**	1
Squat and get down on your knees (Stooping)	110 (37)	127 (42)	51 (17)	12 (4)	231 (77)	51 (17)	13 (4)	5 (2)	1.59E-22**	1
Stretch out and reach out for something above your head (reaching)	157 (52)	100 (33)	35 (12)	8 (3)	276 (92)	19 (6)	4 (1)	1 (0.3)	2.47E-26**	1
Grasp something with your fingers freely (grasping)	173 (58)	96 (32)	28 (9)	3 (1)	280 (93)	16 (5)	4 (1)	0	5.01E-23**	1
Lifting an object weighing approximately 10 kg (lifting)	94 (31)	98 (33)	85 (28)	23 (8)	232 (77)	46 (15)	9 (3)	13 (4)	7.64E-30**	1
Climbing 2-3 flights of stairs (Stairs)	83 (28)	103 (34)	67 (22)	47 (16)	222 (74)	60 (20)	12 (4)	6 (2)	4.17E-32**	1

**—Significant at 0.01 level

Figures in parentheses denote percentage

Higher proportion of Japanese reported 'no difficulties' in performing all the items of functional activities. The items for which 'extreme difficulty' reported were for 'climbing 2-3 flights of stairs' and 'squat and get on your knees' (4% each). The item for which the highest proportion of respondents reported 'cannot do at all' was for 'lifting an object weighing approximately 10 kg' (4%).

The lowest functional disability (not difficult at all) was reported for the item 'grasp something with fingers' in both countries (58% for India and 93% for Japan). 'Climbing 2-3 flights of stairs' and 'lifting an object weighing approximately 10 kg' were the common leading activities with higher degree of difficulty; and the activity of 'grasp something with fingers' was the common leading activity with least degree of difficulty in both countries. Thus similarities could be observed for the common leading items with higher and lower degrees of difficulties in both countries.

Functional Ability Index was calculated based on the scores obtained for each of the respondent. The total score for each respondent was calculated by adding the scores obtained for each item of the functional activities. Higher scores indicated higher disabilities. Based on the scores the respondents were categorized into those with 'no disabilities'; 'moderate disabilities', 'severe disabilities' and 'very severe disabilities'.

The Functional Ability Index (FAI) indicated significant difference between the respondents of the two countries (Table 8). Higher proportion of Japanese (65%) had 'no functional disabilities' compared to India (16%). Higher proportion of Indian respondents (31%) had 'severe to very severe disabilities' than the Japanese (5%).

Similar results were obtained in a study conducted by Alam and Mukherjee (2005) in India. They found that climbing the stairs, with 80 per cent of dependencies is the most difficult task among the elderly.

Ogawa, *et al.*, (2005) also noted that the leading difficult functional tasks among the Japanese elderly were lifting objects weighing 10 kilograms and climbing stairs.

Table 8
Functional Ability Index

<i>Combined Score</i>	<i>Categories</i>	<i>INDIA</i>	<i>JAPAN</i>
1-7	No disabilities	49 (16)	196 (65)
8-14	Moderate disabilities	159 (53)	88 (29)
15-21	Severe disabilities	80 (27)	12 (4)
22 and above	Very severe disabilities	12 (4)	4 (1)

Chi square=4.40332E-35**

Probability=1

Level of significance-0.01

Factors Associated with the Functional Health of Elderly

Significant association was found between education and Functional Ability of elderly. Those with higher levels of education had lower disabilities in doing functional activities, than those with lower educational levels in both countries. Education tends to increase the accessibility to various resources such as income and health care measures. Education could also help to increase awareness regarding various health related issues and as a result of this people could adopt better health practices. This could buffer the functional disabilities of the elderly (Table 9).

Significant association was observed between financial independence and Functional Ability among Indian respondents. Those who were financially independent had lower disabilities in functional activities than those who were dependent (Table 9). A plausible reason for this is that financial independence provides greater accessibility to resources such as healthier food, better physical environment and health care facilities, thus in turn the probability of decreased disabilities. However, no significant association was observed between financial independence and Functional Abilities among the Japanese respondents.

Significant association was found between living arrangements and Functional Abilities of the respondents in both the countries. Among Indian respondents, those who lived alone had 'no disabilities' in functional activities than others. Among Japanese respondents,

those who lived alone and lived with others had 'no disabilities' in functional activities than others (Table 9). Henceforth, from these findings it can be concluded that in both the countries those who 'lived alone' commonly had lower disabilities with regard to the functional health. Those who live alone tend to perform the 'at-home' and 'out-of-home' activities related to daily life themselves. The frequent mental and physical exercises associated with this could possibly equip them to maintain their functional abilities better and longer period than others.

In a study by Gupta and Sankar (2002) in India, it was seen that those living with spouses have a better chance of warding off disability than those living without their spouses. They observed that living arrangements might have an impact on the functional health of elderly in India. Sengupta and Agree (2002) reported that co residence with children is associated with impairments of elderly among Indians.

Kawamoto, *et al.*, (2004) indicated that good financial condition was associated with maintaining functional capacity in Japanese elderly people. However, Jingu, *et al.*, (2003) found that living with spouse was positively associated with the maintenance of high functional capacity while living alone was negatively associated with the functional capacity among Japanese elderly.

Significant association was found between education and chronic morbidities in both the countries (Table 10). Respondents with higher educational levels had lower chronic morbidities than those with lower educational levels in both the countries (India 24%, Japan 32%). Since education brings increased health awareness and economic gains, the elderly with higher educational level tend to follow good healthy practices and health seeking behaviour. This could possibly help them in remaining less susceptible to chronic diseases than those with lower education.

Similar results were observed in the studies conducted by Joshi, *et al.*, (2003) and Chakraborty (2005) in India. They identified that education was an important determinant of morbidity among Indian elderly.

Table 9
Factors Associated with the Functional Health of the Respondents

Variable	India			Japan		
	Functional Ability					
	No Disabilities	Disabilities	Chi Square	P	No Disabilities	Disabilities
Education						
College level	18(20)	71(80)	0.7299**	1	166(69)	75(31)
School level	31(15)	180(85)			30(51)	29(49)
Financial independence						
Independent	23(19)	98(81)	0.02014**	0.9992	132(67)	66(33)
Dependent	26(15)	153(85)			64(63)	38(37)
Living arrangements						
Living alone	5(31)	11(69)	0.90432**	0.9999	31(70)	13(30)
Living with children	14(16)	75(84)			15(50)	15(50)
Living with other family members	0(0)	13(100)			11(73)	4(27)
Living with spouse	4(11)	34(89)			70(63)	41(37)
Living with spouse and children	26(18)	118(82)			69(69)	31(31)

**significant at 0.01 level

Figures in parentheses denote percentage

Factors Associated with Incidence of Chronic Morbidities

Table 10
Association Between Education and Chronic Morbidities

<i>Variable</i>	<i>INDIA</i>			
	<i>Chronic morbidities</i>			
<i>Education</i>	<i>Low</i>	<i>High</i>	<i>Chi-square</i>	<i>P</i>
College level	21(24)	68(76)	0.80154**	0.999938
School level	36(17)	175(83)		
JAPAN				
College level	77(32)	164(68)	0.050911**	1
School level	10(17)	49(83)		

**-significant at 0.01 level

Figures in parentheses denote percentage

Key Implications

The investigation was a cross-country study of the health of elderly in Japan, a developed country and India, a developing country. The study was an attempt to examine the incidence of chronic morbidities and functional health of the elderly in India and Japan against their socioeconomic background.

The study revealed that the Japanese elderly were in a better position in socio economic status compared to their Indian counterpart. Japanese elderly had better educational levels compared to Indian elderly. In addition, higher proportion of Japanese elderly was employed and financially independent compared to Indian elderly.

It is also apparent from the findings of the study that the health status of elderly Japanese in terms of incidence of chronic morbidities and functional health was better than its counterpart in India.

The findings also established the association between distinct socioeconomic factors such as education, financial independence, and living arrangements with the functional health of the elderly; and significant association between education and incidence of chronic morbidities in both the countries. This finding necessitates in bringing

to light few socioeconomic factors contributing to the better health of the Japanese elderly.

Higher levels of education among the Japanese elderly could partly explain their better health status. Japanese government has been promoting lifelong education as a national priority in order to encourage active participation of people in the society for their well-being. The Health and Welfare Ministry recognizes that learning opportunities for the elderly are a good vehicle for health promotion and many elder colleges were established, organized and sponsored by the Welfare Ministry (Cusack and Hori, 2005). These educational initiatives for the elderly by the Japanese government are highly persuasive and could directly and indirectly exert positive impact on the social, economic, and physical well-being of individuals.

The increased financial independence among the Japanese elderly compared to Indians is another factor to be noted here. The higher work participation among the Japanese even after retirement could contribute to the financial independence among them. In Japan, working after retirement is a distinctive feature. In 1971, the government enacted the Law Concerning Stabilization of Employment of Older persons, the most significant initiative to the support of older people by the Japanese government. Moreover, the unique model of Silver Human Resource Center (SHRC) by the Japanese government for the employment promotion of elderly is worth mentioning. "Fully subsidized by the national and municipal governments, each SHRC chapter provides community-based employment opportunities for local residents age 60 and older who seek such non regular employments as temporary, contract, part-time or other forms of paid work"(Williamson and Higo, 2007).

These efforts by the Japanese government are credible models to persuade to promote the employment of elderly in countries like India.

Moreover, Nakamura, *et al.*, (2009) pointed out the beneficial aspects of the traditional Japanese diet in its low intake of saturated fatty acid and high intake of polyunsaturated fatty acid especially from fish. The traditional Japanese diet which is rich in vegetables and fish may be one of the key factors for their better health status.

In addition to the above factors, it is extremely significant and intriguing here to document the distinctive efforts by the Japanese government that has contributed in achieving the highest and healthy longevity in the world along with preserving the functional health of the elderly. Documenting this is highly significant at this point of research for serving as a reference point for while planning for the health care of elderly in India.

Under the 'revision of long term care insurance system' in Japan, 'preventive care' was incorporated as major service component. Programmes under this include: (a) Physical exercise training (this also include exercise for increasing muscular strength); (b) guidance for nutrition and oral function; and (c) prevention or support of withdrawal, dementia and depression (Ministry of Health, Labour and Welfare, 2005).

The universal health insurance of Japan covers a broad range of medical and health care services including hospital care, physician, dentist and pharmacist services, prescription drug costs and some preventive care services. Seniors above 70 and over shall co pay only 10 per cent of the total cost of medical services and drugs (Ministry of Internal Affairs and Communications, 2011).

According to the 'health Japan 21' plan by the health ministry of Japan, 'physical activities and exercise' has been given priority in preventing life-style related diseases. The plan also intended to raise public awareness among people on physical activities and exercise, increasing the percentage of individuals involved in daily exercise activities and habits, and creating environments where those activities can take place. Standard values for physical activities, exercise, and physical strength for preventing life style-related diseases based on the results of a variety of research are mentioned in the plan (Ministry of Health, Labour and Welfare, Japan 2009).

In India, the lower educational attainment of elderly is one of the basic factors for their lower health status. Lower levels of education could limit the health awareness of elderly. Active involvement in educational and learning activities in old age is not a common feature in India.

The study reveals that in India, the concept of working in old age is not common. This may be one of the reasons for their financial dependency and lower economic status. Increased financial dependence may tend to restrict accessibility to resources such as healthy food, health care measures and better physical environment. Therefore it is very important to provide innovative employment opportunities to keep the elderly engaged in old age as long as possible.

In India, health insurance is limited to only a small section of the people in the 'organized' sector and covers less than 10 per cent of the total population (Kerala State Planning Board, 2009). There are no serious attempts to promote the health of the elderly. There is no separate medical insurance for the elderly in India. Moreover there are very less attempts to raise the public awareness in the preventive health care of the elderly.

Therefore, the poor health status of Indian elderly compared to Japan could be the result of combination of various factors such as lower educational attainment, increased financial dependence as a result of poor economic condition, lack of preventive health care measures and absence of universal medical insurance.

Moreover, studies show that poor dietary pattern is one of the factors that contribute to the poor health of the elderly. Jotheeswaran, *et al.*, (2010) found that under nutrition among elderly is highly prevalent in India. Among older persons, under nutrition accounted independently 44 per cent of deaths.

Popkin, *et al.*, (2001) observed that compared to other Asian countries, high amounts of sugar are consumed in India. 'In addition to sugar, many of the Indian sweets are often prepared with a substantial amount of saturated fat from ghee or coconut components' (Daniel, *et al.*, 2011). The high sugar and fat content in the Indian diet may be one of the factors leading to various diseases.

All these could act as dietary risk factors causing various chronic diseases among Indian elderly. Therefore, based on the findings of the present study, the following suggestions are put forward for the better health status of Indian elderly taking lessons from Japan.

Suggestions for the Better Health Status of Elderly in India

Learning opportunities must be provided with the aim of reducing the poverty and economic dependency of elderly. In addition to providing basic literacy and reading skills, it should be associated with providing knowledge and skill training necessary for actively participating in society. Then only the status of elderly could be raised. The thrust area should be reducing the poverty and financial dependency of elderly. Therefore, for poor elderly, crash courses on learning along with skill training simultaneously needs to be provided in a rigorous manner in order to get them involved as active citizens of society.

Taking the Silver Human Resource Centre in Japan as an example, community based employment centers could be started to provide diversified work opportunities to elderly that suit them. The centers can also provide skill training for various jobs. There would be great scope for such community based employment centers, as it can provide employment opportunities to all categories of elderly by providing jobs from jam and pickle making to recycling, stitching, teaching, park cleaning, office and administrative work, etc. This idea could be utilized to the best for the benefit of elderly by appropriate modifications. The scope of this idea is boundless.

Universal health insurance for the elderly should be implemented. Just like in Japan, a reduction in fee payment should be provided to the elderly while seeking health care in hospitals and clinics.

There is an urgent need to implement health care measures for the elderly. This could involve a combination of factors. Firstly, preventive measure of health care should be implemented. Just like Japan, this could incorporate physical exercises for muscular strength and a rigorous health education that includes nutritional guidance, personal hygiene, and appropriate physical exercises. Self-responsibility in health care should also be emphasized to the elderly.

Just like Japan, persuasive messages through media on the significance and benefits of regular exercises to maintain the functional health of elderly is needed. Educational and other intervention

programmes enhancing physical exercise habits should be implemented at community level to reach a large number of elderly. Such preventive health care initiatives by the government could have far reaching effects in mitigating the health related issues of elderly.

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Effectiveness of Productive Engagement in Work in Using the Coping Strategies of Religious Senior Citizen

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ABSTRACT

The mental health and well-being of the senior citizens is a contemporary concern. The present study empirically investigated the effectiveness of productive engagement in work in using the coping strategies of the religious senior citizen when confronted with stress. Sample consisted of 100 religious senior citizens within the age range of 60 to 70 years (Mean age 65.5 years). Religiosity scale (Bhushan, 1990) was used to find out the level of religiosity of the senior citizens. Coping strategies scale (Folkman and Lazarus, 1987) was applied to measure the use of coping strategies and to assess productive engagement in work, self developed check list was employed. The findings revealed that productively engaged senior citizens entertained self control, distancing, escape avoidance and planful problem solving coping strategies more than non engaged senior citizens. Further males reported significantly used more of escape avoidance and distancing coping strategies when confronted with stress as compared to females.

Key Words: Religiosity, Productive engagement in work, Gender, Coping strategies

Ageing is the process of changes in biological and psychological state, and social relationships. The psychological function of ageing is a

learning and interactive process from which individuals accumulate experience in various facets of life. During our lives we are faced with as many elements as possible, as well as, we experience so many setbacks, and fight such a hand-to-hand battle with failure, head down in the rain, just trying to stay upright and have a little hope. The tour isn't just a bike race; it tests you mentally, physically, and even morally.

Behavioural scientists are showing interest in exploring how a sense of spirituality and religiosity contributes to an experience of late life well-being that is not tied to the typical objective indicators of health, financial security, and social support. Through their discovery and utilization of spiritual resources, older persons may experience their lives as meaningful even in the face of multiple, serious challenges to satisfaction with life (Wong, 1989). Religion, therefore, may be acting as a buffer against social and financial deprivations and more studies are needed controlling for these confounding variables (Conway, 1985; Koenig, *et al.*, 1988). It is this aspect of well being—meaning—that has largely been missing from the research on ageing well.

Millions of older people—indeed, the majority—copes constructively with the physical limitations, cognitive changes, and various losses, such as bereavement, that frequently are associated with late life. Thus, successful ageing is contingent upon three elements: avoiding disease and disability, sustaining high cognitive and physical function, and engaging with life (Rowe & Kahn, 1997). The latter encompasses the maintenance of interpersonal relationships and productive activities, as defined by paid or unpaid activities that generate goods or services of economic value (Caro and Bass, 1995).

Stress is inevitable in our lives as we age. As a person gets older and older there are more stressors that appear and can cause extreme side effects both physically and emotionally (King, 1997). Several risk factors that lead to stress in the elderly include a past history of depressive illness, inadequate social support, and serious illnesses such as a stroke, and neurodegenerative diseases such as Alzheimer's disease and Parkinson's disease. Some reports have suggested that life stress may also be related to late-life depression (Glass, 1997).

People differ not only in the life events they experience, but also in their vulnerability to them. A person's vulnerability to stress is influenced by his or her temperament, coping skills and the available social support. Coping skills or strategies refers to characteristic ways of dealing with difficulties that influence how we identify and try to solve problems (Sarason and Sarason, 2000). Experience and success in coping with similar situations, well-founded self-confidence, and the ability to remain composed and "think on one's feet" instead of falling to pieces when faced with a problem, all contribute to realistic appraisals of and responses to situations.

In coping, people use their personal resources to master problem, overcome or side stack an obstacle, answer a question, or resolve a dilemma (Hodgkinson and Stewart, 1991; Lazarus, 1991). The most commonly used coping strategies are problem-focused coping, emotion-focused coping, social support, religious coping, and making meaning or make sense of the problem (Aldwin & Revenson, 1987).

Religious coping is one of the most preferred coping strategies by older people. So, health professionals are beginning to appreciate seriously the role that religious faith plays in the lives of older people, particularly those with chronic illness and disability. Medical research is showing that many older people are religious and depend on religion as a major way of coping with physical health problems (Koenig, 2000). According to recent Gallup polls (Princeton Religious Research Center, 1996), religion is also often used to cope with difficult changes associated with ageing, such as declining financial, social, and physical health resources. Religious beliefs provide older people with a form of control over uncontrollable health problems and other life circumstances that the nonreligious do not have (Koenig, *et al.*, 2001). Moreover, little empirical evidence is available revealing whether productive engagement in work of religious senior citizen makes a unique contribution to their coping with life problems.

The objectives, thus, found to be substantial with regard to the present study to see the effect of productive engagement in work and gender on the coping strategies used by the religious senior citizen.

Material and Methods

Sample

The subjects for the present study using purposive sampling method constitutes of 100 senior citizens (mean age 65.5 years) drawn from the Jaipur city of Rajasthan state from different setups, i.e., homes, offices, workouts and community service centers, etc., of middle class socio-economic status. As far as the level of education is concerned, only the literates were included in this study. A preliminary study was carried out to find out the extent of religiosity in old age. Only senior citizens having a high religiosity score on Bhushan's Religiosity Scale were included in the study.

The subjects were classified into groups on the basis of productive engagement and non-engagement in work and gender. Finally 100 subjects, 50 productively engaged (25 males and 25 females) and 50 non-engaged (25 males and 25 females) senior citizen were included.

Research Design

2O2 factorial design (A-Productive engagement in work: A1-engaged and A2-non-engaged, B-Gender: B1-male and B2-female) was used, and accordingly four groups were formed. Results were analyzed through two way ANOVA.

Tools

1. *Religiosity Scale*: The religiosity scale developed by Bhushan (1990), incorporating 36 items in simple Hindi intends to study the various dimensions of religious behavior. R-scale is a five point Likert type scale. Subject's religiosity score is the algebraic sum of scores obtained by him on all the different items. The reliability coefficient by split-half method was found 0.82. The scale was found to have a predictive validity. Further, the test was validated against the 'religious value scale' of the Allport-Vernon-Lindzey study of values. The two test scores yielded a positive correlation of 0.57 indicating that the test possessed concurrent validity as well.
2. *Measure for assessing Productive Engagement in Work*: "productive activities are those that produce goods or services, whether paid

for or not (Caro & Bass, 1995). A number of activities, i.e., housework, child care, home maintenance, volunteer work, informal help to family and friends, assistance to persons who have chronic physical and mental problems or who experience sudden problem and regular and irregular paid work have been included in the present study. The criterion for productive engagement in work as set up by the researcher was at least 18–20 hours per week spent for that activity. The engagement in work has been assessed by asking the subjects about their involvement in various activities and the number of hours devoted to that activity.

3. *Coping Strategies Scale*: Coping was assessed with the revised version of the Ways of Coping Questionnaire developed by Folkman and Lazarus (1987). It consists of 50 items. It is a 4-point scale and measures eight different dimensions of coping strategies, i.e., Confronting coping, distancing, self-control, seeking social support, acceptance of responsibility, escape avoidance, planful problem solving, and positive reappraisal. Internal consistency of the scale was 0.75. The eight coping scales were derived covering 46.2 per cent variance. The intercorrelation were arranged over five occasion from 0.01–0.29.

Results and Discussion

2X2 ANOVA was computed to test the independent and joint effect of productive engagement in work and gender in later life on coping strategies and its dimensions (confronting coping, distancing, self-controlling, seeking social support, accepting responsibility, escape avoidance, planful problem solving, and positive reappraisal). Table 1 depicts mean and standard deviations of the scores on eight dimensions of coping strategies and total coping strategies and Table 2 is related to analysis of variance for eight coping strategies and total coping strategies.

Table 1
Mean and SD Values on Different Coping Strategies of Productive Engaged and Non-engaged Males and Female Senior Citizens

Variables	Engagement in Work			Gender	
		Productive Engaged	Non Engaged	Males	Females
Confronting Coping	M	9.52	9.36	8.08	8.92
	SD	3.49	3.81	2.97	2.91
Distancing	M	9.88	8.80	8.56	7.00
	SD	3.82	2.99	3.06	2.59
Self-controlling	M	12.16	9.64	9.60	9.68
	SD	3.636	3.32	3.57	2.53
Seeking social support M	9.36	9.36	8.52	8.16	
	SD	3.01	2.67	3.06	2.44
Accepting responsibility M	5.04	4.60	4.28	5.16	
	SD	2.11	1.527	1.62	1.95
Escape Avoidance	M	13.24	11.48	11.08	9.96
	SD	3.918	3.137	3.46	2.776
Planful problem solving	M	9.84	9.08	8.20	8.40
	SD	3.91	2.675	3.095	2.217
Positive Reappraisal	M	10.68	9.64	10.24	9.48
	SD	3.66	2.87	3.61	2.18
Total Coping Strategies	M	79.72	71.96	68.56	66.76
	SD	9.24	9.108	9.327	8.027

Table 1 and 2 reveals that no significant differences were observed between productively engaged and non-engaged older people for the use of 'confronting coping' coping strategy. The interaction effect is also insignificant on this domain. The Tables 1 & 2 depict a significant difference at .05 level between the mean scores of productively engaged and non-engaged senior citizen ($X = 9.88$ Vs 8.80), as well as between males and females ($X = 8.56$ Vs 7.00) in the use of 'distancing' coping strategies. As productively engaged people are engrossed in some or the other activity, in stressful situations they divert their attention from the circumstances arousing stress by developing a

Table 2
Summary of ANOVA of Different Coping Strategies with Productive Engagement in Work and Gender

Variables	F-Ratio		
	Between A Engaged* Non-engaged	Between B Male*Female	A*B Engagement* Gender
Confronting Coping	2.01	.26	.568
Distancing	6.13*	4.389**	.145
Self-controlling	3.66*	3.43	3.898*
Seeking social support	3.29	.10	.10
Accepting responsibility	.076	.366	3.29
Escape Avoidance	7.54**	4.618*	.228
Planful problem solving	3.64*	.21	.62
Positive Reappraisal	.228	2.055	.05
Total Coping Strategies	20.925**	7.145**	2.78

distance from the problem. Further, the productively engaged entertained 'self-control' strategies more than the non-engaged senior citizen ($p < .05$). However, productive engagement in work and gender jointly have not influenced the scores on this domain. Results obtained in this shape throw light on the larger efforts made by the productively engaged senior citizen to regulate one's feelings and actions in stressful situations. Involvement in work helps them maintain their sense of self-control, no matter what the preceding circumstances are.

The analysis of scores on seeking social support, and accepting responsibility dimensions shows no significant effect in either case productive engagement in work or gender or the interactive effect of both. Further analysis of scores reveal that the mean difference of productively engaged and non-engaged senior citizen is significant at .01 level on 'escape avoidance' coping strategies suggesting productively engaged make more use of these strategies than the non-engaged. Males reported significantly more use of these strategies than females ($p < .05$). But the interaction effect of productive engagement in work and gender is insignificant on this measure. Significant differences

between mean scores of productively engaged and non-engaged on planful problem solving' domain can be explicitly seen in the Table 2, along with an insignificant effect of productive engagement in work and gender independently as well as interactively in the use of 'positive reappraisal' coping strategies.

However, if the results are globally glanced at, the total of coping strategies appear to be significantly affected by the productive engagement in work and non-engagement and gender of the senior citizen. Pertaining to the difference in the use of coping strategies, it can be said that productively engaged older people make more use of healthy coping strategies when encountered with stress. Males pertain to make more extensive use of coping strategies in dealing with situations as compared to females.

As the senior citizen under study had high tendency towards religiosity, it can be said that not only productive engagement in work but also religiosity plays a pivotal role in coping with stress simultaneously. When asked to describe the ways they cope with stressful events, older people most often talk about their religious faith and their prayer life (Koenig, *et al.*, 1988; Manfredi & Pickett, 1987; McCrae & Costa, 1986). Religious devotion has been linked to greater life satisfaction and improved psychological health (Coke, 1992; Ho, *et al.*, 1995; Kaldestad, 1996). Courtenay, *et al.*, (1992) also, while studying religiosity and adaptation in the oldest-old came to conclude that religious persons are likely to use religious coping as a method of dealing with health problems.

Thus, the concluding fact that can be drawn from the results obtained is that the use of coping strategies is affected by the productive engagement in work and gender independently. Kahn (1998) notes, "Psychology can get the word out that certain kinds of behavior, like diet and exercise are important. But a less appreciated area is specifically psychological. People do better if they continue to engage with life and maintain their well-being even during immense stress."

Implications

Despite remaining active for several more years, senior citizen generally experience physical deterioration, and are increasingly

confronted with uncontrollable situations (e.g., death of close friends) (Schulz, *et al.*, 1991). As their physical abilities decrease, their attempts to actively alter uncontrollable situations using primary control strategies, increasingly results in failure and a loss of control (Heckhausen & Schulz, 1995). Older people can maintain their perceptions of control however, through increasing their reliance on secondary control strategies that compensate for this failure. These perceptions of control are positively related to subjective quality of life, enhancing physical and mental well-being (Abeles, 1991; Herzog, *et al.*, 1982; Perlmutter & Eads, 1998).

The high level of religious activity among today's elders and its positive impact on their lives suggests that there is a need to put aside the antipathy to religion that often characterizes their discipline and begin to understand the dynamics of religiosity in later life. Health professionals have also begun to appreciate seriously the role that religious faith plays in the lives of older people. Religious beliefs and practices appear to be related to better mental health and improved adaptation to the unforeseen circumstances (Koenig, 2000). Because of better mental health, religiously active elderly people tend to have a better physical health.

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A Study on Primary Health Care for Rural Elderly in Chittoor District of Andhra Pradesh

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ABSTRACT

A study carried out to study the health problems, available health services, and barriers in accessing the health services to rural elderly in Chittoor District, (AP) revealed that body/joint pains, impaired vision, fatigue, sleep disorders, mental health problems, digestive problems, dental problems, bowel complaints, etc., are the major health problems and PHCs, private hospitals followed by RMPs and mobile medical services are the major sources of health care for rural elderly. Financial barriers, lack of family support, poor care, long waiting time, only one type of tablets for all problems, ill-treatment of staff, issue of drugs only for a few days, poor attention by the doctor, etc., are the major barriers expressed by the respondents in accessing the health care services. Patient hearing and better treatment by doctors, more medicines, elderly friendly behaviour of health staff, preference to elderly patients in OPD, health education, improved facilities in PHCs, MMUs with Doctor and periodical eye camps at PHCs are some of the major expectations/aspirations of the rural elderly for their better health care.

Key Words: Elderly, Health problems, Primary health care, Barriers, Expectations

India is a rural dominated economy, the ageing process is faster in rural areas. Rural elderly accounts for about 72 per cent of the total elderly population in India. (GOI. 2011). Despite the growing numbers, the older rural people by almost all economic, health and social indicators are poorer and less healthier than their urban counter parts.

Health is major concern of old age. The elderly living in rural areas tend to have more health problems. Poor vision, joint pains, fatigue, dental complaints, hearing impairment, hypertension, cough and respiratory problems, diabetes, skin diseases, bowel complaints, depression and psychological problems, heart disease, etc., were some of the common health problems faced by the rural elderly in India. (Venkobarao, 1987; Vijayakumar, 1996; Purty, *et al.*, 2006; Srivastava, 2007).

Despite its importance to elderly people healthcare is inaccessible to many. The older people were provided with little medical care through the network of Primary Health Centres (PHCs) and Sub Centres in rural areas. These services for the geriatrics were unorganized and too less to bring any relief to fast growing old population in the country (Swami and Bhatia, 2003). Most recently Government of India has launched the National Programme for the Health Care of elderly (NPHCE) in 2010, to provide accessibility and high quality, long term comprehensive and dedicated care services to the elderly in the nation. But the implementation of the programme in full shape in selected districts is also awaited.

Keeping all the above issues in view, a study was carried out to find out the health problems, available health services and barriers in accessing the health services by the rural elderly in the rural areas of Chittoor District in Andhra Pradesh.

Objectives

1. To study the health problems of rural elderly.
2. To study the primary health care facilities available to rural elderly.
3. To study the barriers in accessing the primary health care services by the rural elderly.

4. To suggest measures for improvement of primary health care services for rural elderly.

Methodology

Study Area

The study was carried out in three mandals of Chittoor revenue division, i.e., Chittoor, Gudipala and Yadamari of Chittoor District (Andhra Pradesh)

Universe and Sample Frame

Universe of the present study constitutes the aged, i.e., 60 years and above belonging to the selected villages in the three mandals. Among the three mandals two revenue villages are randomly selected from each mandal for study. In each revenue village, elderly aged 60 years and above are listed from recently updated voter list and this would constitute the universe of the present study. From the located universe, 300 respondents (150 male + 150 female) are randomly selected by adopting proportionate random sampling method for the present study.

Tools of Data Collection

An exclusive interview schedule prepared keeping the objectives of the study in view was the tool for data collection.

Results and Discussion

General Profile of the Rural Elderly

The data presented in the Table 1 on the general profile of the rural elderly revealed that the majority of the respondents were in the age group of 60–69 (66.67%), currently married (69%), illiterate (69.67%), living in nuclear families (47.67%), with Agriculture as main occupation of the family (70.67%). More than half (58%) of the respondents were living with their son along with spouse and majority were economically fully dependent (54%).

Table 1
General Profile of the Rural Elderly

S.No.	Characters	Male		Female		Total	
		No.	%	No.	%	No.	%
1	Age						
	1. 60-69	97	64.67	103	68.67	200	66.67
	2. 70-79	41	27.33	34	22.67	75	25.00
	3. > 80	12	8.00	13	8.67	25	8.33
2	Marital Status						
	1. Currently Married	114	76.00	93	62.00	207	69.00
	2. Widowed	36	24.00	57	38.00	93	31.00
	3. Unmarried	0	0.00	0	0.00	0	0.00
3	Literacy						
	1. Illiterate	98	65.33	111	74.00	209	69.67
	2. Primary	37	24.67	32	21.33	69	23.00
	3. Secondary	11	7.33	6	4.00	17	5.67
	4. Intermediate	4	2.67	1	0.67	5	1.67
	5. Degree & above	0	0.00	0	0.00	0	0.00
4	Type of family						
	1. Joint	33	22.00	35	23.33	68	22.67
	2. Nuclear	73	48.67	70	46.67	143	47.67
	3. Extended Family	41	27.33	41	27.33	82	27.33
	4. Living alone	3	2.00	4	2.67	7	2.33
5	Occupation of the family						
	1. Agriculture	106	70.67	106	70.67	212	70.67
	2. Agrl. Labour	40	26.67	41	27.33	81	27.00
	3. Artisan	2	1.33	1	0.67	3	1.00
	4. Business	1	0.67	0	0.00	1	0.33
	5. Petty Shop	1	0.67	2	1.33	3	1.00
6	Economic Dependence						
	1. Fully dependent	56	37.33	106	70.67	162	54.00
	2. Partially dependent	31	20.67	24	16.00	55	18.33
	3. Independent	63	42.00	20	13.33	83	27.67
7	Living arrangements						
	1. Alone	3	2.00	4	2.67	7	2.33
	2. With spouse	17	11.33	12	8.00	29	9.67
	3. With son along with spouse	96	64.00	78	52.00	174	58.00
	4. with son without spouse	31	20.67	42	28.00	73	24.33
	5. with daughter without spouse	2	1.33	7	4.67	9	3.00
	6. with relatives	1	0.67	7	4.67	8	2.67

Health Status of Rural Elderly

The perception of health is the feeling of people about their own health. The data on the perceived health status of elderly respondent in the present study (Table 2) revealed that most of the elderly rated their health status as fair (52.67%).

Table 2
Health Status of Rural Elderly

<i>Health Status</i>	<i>Male</i>		<i>Female</i>		<i>Total</i>	
	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>
1. Excellent	10	6.67	9	6.00	19	6.33
2. Good	28	18.67	26	17.33	54	18.00
3. Fair	77	51.33	81	54.00	158	52.67
4. Poor	35	23.33	34	22.67	69	23.00
χ^2 -value; significant Level			242; NS			

Few of them (6.33%) rated their health status as excellent. Whereas 23 per cent and 18 per cent of the respondents rated their health status as poor and good respectively.

More or less similar results were reported by Sivaraju (2002) in a medico-social survey on the health status of the Urban elderly. Similarly Audinarayana (2012) in an empirical study carried out on rural elderly also reported that about 50 per cent of the respondents perceived their health status as fairly alright, slightly more than one-third felt that they were healthy, while just about 15 per cent opined that their health was not good.

Health Problems of Rural Elderly

Ageing is a time of Multiple illness and general disability. As age advances, due to deteriorating physiological conditions, the body becomes prone to illness (Strong and Michael, 1992). Table 3 indicates the major self reported health problems of the rural elderly in the present study which included, body/joint pains (52%), vision problems (45.33%), fatigue/general weakness (35%), Sleep disorders (31%), Mental health problems (25.67%), followed by Digestive problems (24.33%), Dental problems (23.67%) and bowel complaints (22.33%). The other health problems include Cold & Cough (19.33%),

Ear problems (16.67%), B.P./Hypertension (16%), Respiratory problems (12.67%), Urinary problems (11%) followed by Diabetes (9.67%), piles (9.33%), Asthma (6.33%), Cardiac problems (6%), Skin problems (5.67%), fractures (5.33%), T.B. (3%) and Cancer (0.67%).

Similar to the present study, pain in the joints (43%), dental complaints (42%), decreased visual acuity (32%) among elderly population in the rural areas of Tamil Nadu was also reported by Purty, *et al.*, (2006). More or less similar results on health problems of elderly were also reported by Pappathi (2007), Visweswara Rao (2007), Srivastava (2007), Gupta, *et al.*, (2009), Lena, *et al.*, (2010), Muthukrishnaveni (2010) and Audinarayana (2012).

Table 3
Self Reported Health Problems of Rural Elderly

S.No.	Health Problems	Male		Female		Total	
		No.	%	No.	%	No.	%
1.	Cold and Cough	31	20.67	27	18.00	58	19.33
2.	Body/Joint pains	73	48.67	83	55.33	156	52.00
3.	Eye problems	63	42.00	73	48.67	136	45.33
4.	Ear Problems	24	16.00	26	17.33	50	16.67
5.	Dental problems	41	27.33	30	20.00	71	23.67
6.	B.P./Hypertension	29	19.33	19	12.67	48	16.00
7.	Diabetes	15	10.00	14	9.33	29	9.67
8.	Skin problems	6	4.00	11	7.33	17	5.67
9.	Respiratory problems	17	11.33	21	14.00	38	12.67
10.	Fatigue/general weakness	51	34.00	54	36.00	105	35.00
11.	Piles	11	7.33	17	11.33	28	9.33
12.	Fractures	9	6.00	7	4.67	16	5.33
13.	Asthma	8	5.33	11	7.33	19	6.33
14.	T.B.	5	3.33	4	2.67	9	3.00
15.	Cancer	1	0.67	1	0.67	2	0.67
16.	Urinary problems	12	8.00	21	14.00	33	11.00
17.	Cardiac problems	11	7.33	7	4.67	18	6.00
18.	Sleep disorders	44	29.33	49	32.67	93	31.00
19.	Digestive problems	34	22.67	39	26.00	73	24.33
20.	Mental/Mental depression	& 29	19.33	48	32.00	77	25.67
21.	Bowl complaints	30	20.00	37	24.67	67	22.33
χ^2 -value; significant Level		16.416; NS					

(Multiple Responses)

The reasons for high prevalence of joint pains may be that when people become older there is deterioration of function of musculoskeletal system leading to the restricted mobility of the older people. Further due to hard life faced by rural elderly who never retire from regular work unless disabled also causes fatigue/general weakness among rural elderly. With regard to vision the process of aging contributes to visual loss through the deterioration of function of the eye tissues and increased incidence of ocular pathology in the elderly (Padula, 1982).

Utilization of Health Care Facilities by the Rural Elderly

The data shown in the Table 4 revealed that more than half of the respondents (51.67%) used to get medical treatment from Government run primary health centres (PHCs), and 45% were availing health services from private hospitals/doctors. A sizable percentage of respondents were utilizing the services of local RMPs (29.33%), Mobile Medical Services (104 services) (29%) and District Govt. Hospitals (17%) for their health care needs. The other health care facilities utilized by the rural elderly included Sub Centre/ANMs (12%), Local Traditional Healer (4.67%) and Home Remedies (4.67%). Free treatment, easy accessibility and better care, immediate relief might be the reasons for utilizing services of PHCs and private hospitals respectively by the majority of the respondents in the study.

Table 4
Utilization of Health Care Facilities by the Rural Elderly

S.No.	Health Care Facility	Male		Female		Total	
		No.	%	No.	%	No.	%
1.	Local traditional healer	8	5.33	6	4.00	14	4.67
2.	Local RMP	47	31.33	41	27.33	88	29.33
3.	Sub centre/ANM	11	7.33	25	16.67	36	12.00
4.	PHC	73	48.67	82	54.67	155	51.67
5.	Govt. Hospital	39	26.00	12	8.00	51	17.00
6.	Private Hospital	72	48.00	63	42.00	135	45.00
7.	Mobile Healthcare Service (104 service)	44	29.33	43	28.67	87	29.00
8.	Home remedies	5	3.33	9	6.00	14	4.67
χ^2 -value; significant Level		22.174; 0.01					

(Multiple Responses)

The percentage of elderly utilizing the services of PHCs and sub-centres were slightly higher among women elderly than their counter parts who were men. This might be due the free treatment in PHCs and subcentres which were located nearer to their places requiring not much transport cost, etc. Because most of the rural women elderly were financially dependent on the male family members for their day to day needs.

Whereas, the percentage of elderly utilizing the services of District Govt. Hospital and Private Hospitals were marginally higher among the male elderly than women elderly. This was mainly because, the District Government Hospital and most of private Hospitals were located at a long distance in urban areas and approaching these hospitals was a real problem with older adults mainly due to transport problems coupled with need for some one to accompany and also financial constraints. Similarly Audinarayana (2012) also reported from his study on rural elderly reported that about half of the elderly used to get medical and health services from Government health centres and PHCs/sub centres in rural areas and slightly less than fifty per cent were availing such services from private health centres or hospitals.

Barriers/Problems in Accessing the Primary Health Care Services

Primary Health care services substantially affect the general health of the elderly. However, many barriers undermine the utilization of primary health care services by rural elderly in India. In the present study the information provided in Table 5 reveals that the barriers/problems in accessing the primary health care services from PHCs by the rural elderly included, poor care (46.67%), Long waiting time (40%), Only one type of tablets for all problems (39.33%), ill treatment of staff (34.67%), Issue of few/lesser drugs (33.33%), lack of proper attention of doctor and staff (32.33%), lack of family support (32%), PHC too far (29%), Non availability of doctor (26.67%) and poor health education (26.67%). Whereas in the case Private Hospitals/Doctor, more or less equal number of respondents reported financial problems (52.33%) and lack of family support (51.67%) as

main barrier in accessing the health care services and about one third respondents (32.67%) reported transport problems as barrier.

Table 5
Barriers/Problems in Accessing the Primary Health Care Services

S.No.		Barriers		Male		Female		Total	
				No.	%	No.	%	No.	%
PHCs									
1.	Only one type of tablets for all problems	52	34.67	66	44.00	118	39.33		
2.	Lack of family support/Nobody to take to hospital	37	24.67	59	39.33	96	32.00		
3.	PHC too far	41	27.33	46	30.67	87	29.00		
4.	Long waiting time	56	37.33	64	42.67	120	40.00		
5.	Non availability of doctor	38	25.33	42	28.00	80	26.67		
6.	Lack of proper attention of doctor and staff	44	29.33	53	35.33	97	32.33		
7.	Few/less drugs	47	31.33	53	35.33	100	33.33		
8.	Ill treatment of staff	51	34.00	53	35.33	104	34.67		
9.	Poor care	68	45.33	72	48.00	140	46.67		
10.	Poor health education	34	22.67	46	30.67	80	26.67		
χ^2 -value; significant Level				3.660; NS					
Private Hospital/Doctor									
1.	Family support	71	47.33	84	56.00	155	51.67		
2.	Financial problems	76	50.67	81	54.00	157	52.33		
3.	Transport problems	41	27.33	57	38.00	98	32.67		
χ^2 -value; significant Level				1.05; NS					

(Multiple Responses)

Rao, *et al.*, (2006) described five main indicators of how users perceive quality in public hospitals as medicines availability, medical information, staff behaviour, doctor behaviour and hospital infrastructure. The results of the present study were also exactly in accordance with the above indicators. Similar results have been reported by Help Age International (2008) in a participatory study on primary health care for elderly in 5 Asian countries including India.

Further the rural elderly were poorer. Rural employment has been more seasonal in nature and this limits the ability of rural elderly

to improve their financial status. Thus they have fewer economic resources and face problems in accessing health care from private hospitals which needed more money for treatment. Many studies reported financial problems as barriers in accessing healthcare by the elderly (Ingle and Nath (2008), Neelima and Sudharshan Reddy (2009) and Audinarayana (2012).

Expectations/Aspirations of Rural Elderly

Expectations/Aspirations of Rural Elderly for better health care from PHCs, Government and Family Members were presented in Table 6. The data revealed that from PHCs, high number of respondents aspired for patient hearing of their health problems and better treatment by Doctor (48%), medicines for more number of days (43%) followed by elderly friendly behaviour of PHC staff (27.67%), facilities for waiting, drinking waters and toilets at PHCs (24.33%), preference to elderly patients in OPD (24.33%), Health Education (21.33%) and periodical eye camps at PHCs (19.33%). These issues shows the neglected and negative attitude of health care providers towards elderly patients. This also clearly indicated the need for basic training on skills, knowledge and techniques for health provides to facilitate good care to the rural elderly. Most older patients want to understand their medical condition and were interested in learning how to manage them. Giving elderly patient a chance to express concerns to the physician can be therapeutic.

While from Government, about one third (32%) of the respondents aspired for 104 Mobile Medical Units (MMU) with doctor to villages, followed by increase in old age pension amount (30.67%) and free treatment at big hospitals (Super Specialty Hospitals) (14%). As majority of rural elderly are physically weak and have locomotor, visual and hearing impairments, visiting PHCs frequently for treatment was an ordeal. Thus MMU with Doctor will greatly help the poor rural elderly in seeking health care at their door step without any problems. Help Age India was successfully providing healthcare for many elderly in slums and rural areas through MMU programme. (Help Age India 2011).

Interestingly from family members, more than three forth of the rural elderly respondents (75.33%) aspired for love and affection of their children, timely food (52%) followed by frequent visit of their

children who was living away from them (38.67%), timely health care (38.33%) and family without quarrels (29%). The expectations of rural elderly in the present study for love and affection of children, timely food, regular health care, etc., from family members, increased amount of old age pension (OAP) from Govt. were also reported by Muthukrishnaveni (2009) and Viveswara Rao (2007). This was mainly because now a days most of the adult children were migrating to urban areas leaving behind their elderly parents in villages and thus most of the rural elderly were not only becoming vulnerable and dependent but also deprived of love and affection of their loved children.

Table 7
Expectations/Aspiration of Rural Elderly

S.No.		Expectations/ Aspirations	Male		Female		Total	
			No.	%	No.	%	No.	%
PHC								
1.	Patient hearing and better treatment by Doctor	67	44.67	77	51.33	144	48.00	
2.	Medicines for more number of days	63	42.00	66	44.00	129	43.00	
3.	Preference to elderly patients in OPD	35	23.33	38	25.33	73	24.33	
4.	Health Education	28	18.67	36	24.00	64	21.33	
5.	Periodical eye camps at PHC	27	18.00	31	20.67	58	19.33	
6.	Elderly friendly behaviour of staff	38	25.33	45	30.00	83	27.67	
7.	Facilities for waiting drinking water and toilets	32	21.33	41	27.33	73	24.33	
χ^2 -value; significant Level				0.765; NS				
From Government								
1.	Increased OAP	47	31.33	45	30.00	92	30.67	
2.	MMU with doctor	50	33.33	46	30.67	96	32.00	
3.	Free treatment at big hospitals	19	12.67	23	15.33	42	14.00	
χ^2 -value; significant Level				0.574; NS				
From Family Members								
1.	Love and affection of children	107	71.33	119	79.33	226	75.33	
2.	Timely food	80	53.33	76	50.67	156	52.00	
3.	Frequent visit of children	57	38.00	59	39.33	116	38.67	
4.	Timely healthcare	54	36.00	61	40.67	115	38.33	
5.	Family without quarrels	39	26.00	48	32.00	87	29.00	
χ^2 -value; significant Level				1.167; NS				

(Multiple Responses)

Suggestions For Better Health Care of Rural Elderly

Keeping the above results in view, following suggestions were made for the better primary healthcare of rural elderly in India.

1. In view of the increasing population of rural elderly, there is a need for a community based health care services to meet the requirements of vulnerable elderly in rural areas. This can be achieved by strengthening of ASHA workers at village level by imparting training on preventive and basic curative aspects of geriatric care to act as geriatric care givers in villages. They can provide home care, assist family members, improve care giving skills and work to create positive attitude among the rural elderly. Further all the ANMs working at the grass root level should be trained and sensitized on approach to the elderly and family, prevention and curative aspects of elderly health problems, psychosocial management of the elderly, counseling skills and for referrals.
2. Accessing health care facilities is one of the major problems faced by the rural elderly, owing to lack of transport, geographical distance, and physical help for travel. Under these conditions Mobile Medical Units with a Doctor and paramedics equipped with medicines and equipment to diagnose and treat the most common ailments are cheaper and effective for meeting the health care needs of the vulnerable rural elderly. HMRI-104 services (Fixed Day Health Services) operating under NHRM can be successfully utilized for this purpose without much additional expenditure with inclusion of Geriatric inputs like training on Geriatric care to the paramedics and medicines for the common Geriatric problems.
3. The standard of health care provided to older persons depends on the personal qualities of the care givers as well as on their professional competence. They must have the basic training which will give them the required skills and orientation to carryout the tasks competently. Therefore all the doctors working in PHCs should be trained and sensitized in Geriatric care to develop necessary minimal skills in the detection and management of common medical problems in the aged and also indications for referral to the nearby referral hospital.

4. Old age is associated with a number of medical problems one of them being decrease in vision. Conducting monthly eye surgery camps at Area Hospitals in every district by a team of Ophthalmologist kept exclusively for this purpose at district level will immensely help the rural elderly. For this Ophthalmic assistants/optometrists should be posted at all CHCs/PHCs for screening the elderly for eye problems and referring needy persons for surgeries to Area Hospitals.
5. With changing demographic profile, India has more older women than men. Both social and health needs of the older women are unique and distinctive as they are vulnerable. Hence health problems of elderly women particularly post menopausal problems should be included as a component of national maternal and child health programmes.
6. Special weekly geriatric OPD in PHCs has to be conducted for elderly people just like special antenatal OPD for pregnant women on every Wednesdays. This will greatly help the elderly to over come the barriers like long waiting time to meet the doctor, neglect and misbehaviour of the staff with elderly. Further this will also create a congenial atmosphere for better understanding of the problems of the elderly by the Doctor and in rendering correct needed services to the vulnerable elderly.
7. Posting physiotherapist with training in counseling skills (or) medico-social workers at PHCs in order to maintain the well being and independence of older persons through self care, health promotion and prevention of disease and disability will greatly help in health promotion for rural elderly.
8. Measures are to be taken to create awareness among rural elderly about the importance of balanced diet, healthy eating habits through the Anganwadi centres functioning in the villages and also by the Krish Vigyan Kendras (KVKs) functioning at district level. NGOs too can play an important role in this aspect.
9. The old age pension amount provided by the Government to the poor elderly should be reasonably increased to an extent atleast to meet their basic minimum needs and health care.

Conclusion

India is a rural dominated economy and in the changing rural demographic scenario, health and strength of the rural elderly plays a major role in sustainability of the Indian agriculture. With old age friendly primary health care services, rural elderly persons who were considered to be the resourceful survivors can continue to contribute to the welfare of their families, community and nation as care givers, farmers and farm workers.

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Measures and Trend of Demographic Support and Dividend of Ageing Process in Bangladesh

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ABSTRACT

The impacts of population ageing create social and economic pressure on the society. This study is an attempt to assess the demographic support and dividend of ageing process in Bangladesh. The population census data from Bangladesh Bureau of Statistics during the period 1951 to 2001 has been used in the analysis. Different measures of socio-economic support ratio's have been computed to carry out the study. From the analysis, a very slow decreasing trend of potential support ratio has been observed. The ratio is greater in urban than in rural. Also the ratio is poor in non-muslim community than muslim community. A declining pattern of young old ratio has also been observed showing a gap between urban and rural areas. From the analysis, it is clear that future support to the elderly will be poor for both urban and rural areas if the current trends prevail. An increasing trend of active population has also been observed over the study period. The analysis reveals that urban has more active population than rural. Non-muslim community shows more active population than Muslim. Therefore it can be concluded that the support capacity of elderly is decreased due to demographic transition.

Key Words: Demographic dividend, Ageing process, Potential support ratio

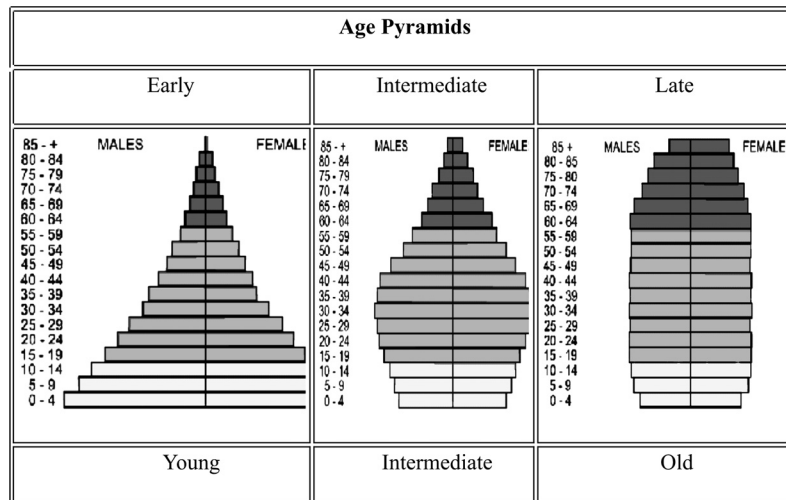
Introduction

Ageing is the process of growing old. It is a biological process, experienced by the mankind in all times (Goyal, R.S. 2000). It is a continuous, complex, and dynamic process that begins with birth and ends with death. And unless we die in our early years, each of us will grow old and experience the effects of the aging process. The overall population begins to age as society moves from a condition of high rates of birth and death, to one of low rates of birth and death.

Population ageing simply refers the age structure of population (Siegel, 2008). Population aging has been occurred for the successful result of controlling infectious diseases. The ageing situation should get due attention not only from the demographic angle but in all the sphere of the economy and social welfare especially nowadays that the country swings at different levels in the continuum of tradition and modernity (Rahman, *et al.*, 2011). The original situation was high rate of birth and death. The situation was changed due to introduction of new medical technologies, which brought a rapid decline in death rate. The demographic dividend is a rise in the rate of economic growth due to a rising share of working age people in a population. This term is used interchangeably with the term “demographic gift”. The demographic dividend happens when a falling birth rate alters the age distribution. The falling birth rate creates a smaller young dependent population, with a larger number of adults who comprise the work force. This creates a dividend or gift which facilitates more rapid economic growth and less strain on families.

The demographic transition shows a very interesting change in the age composition of the population. These changes can be visualised using ‘age pyramids’.

Countries in the middle part of the transition have been termed as demographic dividend or demographic gift. Now an economy depends on its workforce, so it depends largely on those people who are in the age group 15–59 and while all members of the population are consumers, children and old people need to be supported by the working age population. The base ageing (children) and peak ageing (old people) is simultaneously termed as ‘dependent population’ of the ageing process. However it should be remembered that in agrarian



societies children give a lot of help to their parents, and in modern industrialised societies older people may help the economy by looking after children or continuing to work.

When the proportion of older persons in the total population increases dramatically in a short period of time, it becomes particularly difficult for the social and economic institutions to adjust. An increasing proportion in the older ages necessarily affects the relative importance of the other segments. These changes in age composition can dramatically affect society's political, economic and social structure (Walker, 1990; Jackson, 1998).

The older population is growing faster in developed countries than in developing countries. But the proportion of persons 80 years and above is higher in the more developed countries than in the developing nations. The number of centenarians is expected to increase 12 times by the year 2050. The second World Assembly on Ageing emphasized the graying process of population, they have given priority for the well-being and supporting environment of the aged population in the world (United Nations, 2007).

The impacts of current population trend are reflected in the total dependency ratio and old age dependency ratio. The dependency ratio has a declining trend and old age dependency ratio is gradually

increasing. These increasing trends of old age dependency ratio will have severe socio economic implication for the total population, especially on the elderly population of Bangladesh in the near future (Khan, 2007). Due to country's poverty and under development scenario with other demographic and socio-cultural changes, the emerging aged population will have severe economic consequences. Since only a very small percentage of elderly get a formal pension or minimum old age allowance, the vast majority will have to depend on other family members or on other sources. These economically dependent elderly parents and grandparents will become a burden on major portion of the working population (Kabir, 1994).

The consequences of unbalanced age structure may create socio-economic problem in the developing countries and thereby the excess of dependent population. This dependent population is measured by the 'dependency ratio' (Clarke, 1968). The ageing of population threatens the economic growth of the country (Kabir, 1994). The older persons not only receive support and care from the family members-children and their kins, but also render care and support to the family members such as financial help and care to grandchildren (Abedin, 1999).

The impact of population ageing include social and economic pressure of the societies such as living arrangement, pension system, health care facilities, securities to old person, etc. Therefore, the ageing will have a profound impact on societies. The ageing process has positive impact as well. The older people can contribute the societies by sharing their valuable experience (Cheal, 2000). Due to urbanization and the increase in nuclear families, coupled with decreasing fertility and increasing longevity, inabilities of families to take care of old age is increasing rapidly. Ageing is supposed to put pressure on the labor force (kabir, 1999). Also, the labour market will have a large proportion of ageing population. New technologies are not easily adapted by aged people. So they will face problem in use of technologies. Overall labour productivity as well as employment facility will be decreased. As a consequence the 'Government burden' will be increased tremendously. The state has not yet developed the mechanisms to respond to the emerging ageing challenge (Rahman, *et al.*, 2009). The government should identify and assess the size of aged

people in order to improve their socio economic condition (Abedin, 1999).

To respond to the emerging issue, comprehensive research is needed to better understanding. Systematic research on ageing and dissemination of knowledge in general may help both researchers and policy makers to draw policy implication in order to achieve the target of a healthy ageing society. A very few research works have been done to assess the demographic dividend and support of ageing process in Bangladesh. The exact amount and trend of demographic dividend and support of ageing process will help to formulate proper policy of the country. Therefore, the present study is an attempt to measure the demographic support as well as demographic dividend of ageing process in Bangladesh.

Materials and Methods

This paper uses population census data mainly from Bangladesh Bureau of Statistics (BBS), Sample surveys conducted by BBS, United Nations (UN) publications for several census years during the period 1951–2001 and other relevant information. Various support ratio's for the aging process especially for the elderly have been calculated with respect to sex (male and female), locality (rural and urban) and religious community (muslim and non-muslim). A comparative study has also been carried out to achieve the objective.

Proportion of Active Population (P_{15-59})

The ratio of number of person age between 15 and 59 to the total population in a country at a certain time is called Proportion of active population. If $N(t)$ and $N_{15-59}(t)$ are the total population and the number of person age between 15 to 59 of a country at time t, then Proportion of active population is defined as

$$P_{(15-59)} = \frac{N_{15-59}(t)}{N(t)} \quad (1)$$

The Proportion of active population (P_{15-59}) is also known as Proportion of labour force or Proportion of working age population. It is a crude measure of labour force participation rate because all persons in this age group are not able to work or employed. Generally,

the group (N_{15-59}) is considered as active population or labour force of a country.

The active population is defined as the sum of persons in employment and unemployed persons seeking employment. This definition of employment is the one adopted by the Thirteenth International Conference of Labour Statisticians (Geneva, 1982). National definitions may differ in some cases. Generally children (under 15 years of age) might contribute only nominally to economic activities since most of them are school going. Also persons aged 60 years and above may or may not contribute much to economic activity since most of them have retired. Therefore the persons aged between 15 and 59 is the most important age group in point of economic activity (Elahi, 2003).

Potential Support Ratio (PSR)

The ratio of the number of person age between 15 and 59 years per every person age 60 or over is known as Potential support ratio. The Potential support ratio is defined as

$$PSR = \frac{N_{15-59}(t)}{N_{60}(t)} \quad (2)$$

Under usual notations.

The ratio of economically active population ($N_{15-59}(t)$) to the elderly population ($N_{60}(t)$) is also known as Elderly support ratio (ESR) or Old-age support ratio (OASR).

Such support may be provided within the family, through religious or community institutions, or through the state. Not all children and older persons require support, nor do all persons of working age provide direct or indirect support to children and older persons (Taeuber, 1992). In fact, evidence indicates that older persons in many societies are often provides of support to their adult children (Morgan, *et al.*, 1991). Therefore, these indicators such as the PSR, the DR and the OADR should be interpreted with more caution.

Child Support Ratio (CSR)

The ratio of the number of person age between 15 and 59 to the per person age below 15 is known as Child support ratio. The Child support ratio (CSR) is defined as

$$CSR = \frac{N_{15-59}(t)}{N_{15}(t)} \quad (3)$$

Total Support Ratio (TSR)

The ratio of the number of person age between 15 and 59 years to the sum of the number of persons age 60 and over and the number of person age below 15 is known as Total support ratio. It is defined as

$$TSR = \frac{N_{15-59}(t)}{N_{60}(t) + N_{15}(t)} \quad (4)$$

Young-Old Ratio (YOR)

The ratio of the number of person age between 0 and 14 years to the per 100 persons aged 60 years and over is known as Young-old ratio. If $N_{0-14}(t)$ and $N_{60}(t)$ are the number of person age between 0 and 14 years and the number of person age 60 and over of a country at time t, then the Young-old ratio is defined as

$$YOR = \frac{N_{0-14}(t)}{N_{60}(t)} \times 100 \quad (5)$$

Elderly Sex Ratio (ESER)

The ratio of the number of male persons age 60 and over to the the number female persons of the same age group is known as Elderly sex ratio. If $N_{60}^m(t)$ and $N_{60}^f(t)$ are the the number of male person age 60 years and over and the number of female persons of the same age group of a country at time t, then the Elderly sex ratio is defined as

$$ESER = \frac{N_{60}^m(t)}{N_{60}^f(t)} \quad (6)$$

Results and Discussion

To study the nature and trend of demographic support and dividend of Bangladesh population, various measures of support

ratio's have been computed and presented in Table 1 to Table 4. Some of the measures have been represented graphically for better understanding of the aging process.

Demographic Support Capacity of Ageing Process

The older persons not only receive support and care from the family members, children and their kins, but also render care and support to the family. Their contribution should be recognized and should pay special tribute to their contributions. The intergenerational exchange is two-way, with all members benefiting from this process (Abedin, 1999).

Young-old ratio (YOR) plays an important role to understand the support capacity of aging process and for that, this ratio (YOR) can be considered as a measure of support capacity. The ratio is 950 in 1951 and 642 in 2001. This implies that there are 950 children to per 100 elderly. A decreasing trend of YOR has been observed except in 1991(Figure 1). The decreasing patterns of YOR implies that either elderly is increasing or children is decreasing. But due to advanced medical technology and family planning (FP), the birth rate is significantly decreased over the last few years. Therefore this decreasing tendency of YOR is due to population aging at base. So it is clear from the analysis that the support capacity of elderly is decreasing day by day. The Potential support ratio (PSR) is another measure of support capacity of aging process. The PSR is 12 in 1951. This implies that 12 active person are available to support per elderly of Bangladesh. However this ratio was come down to 9 in 2001. The declining pattern

Figure 1
Trend of Young Old Ratio

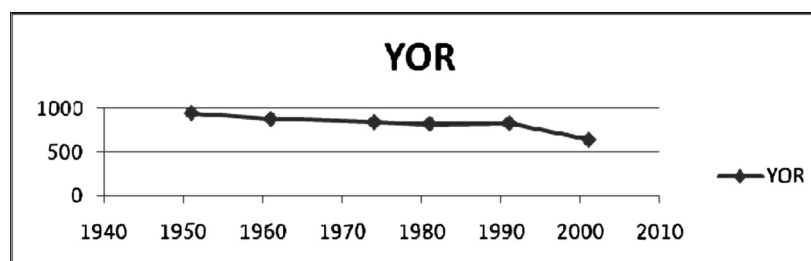
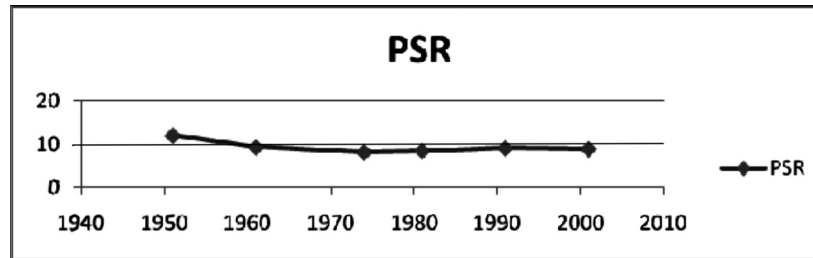


Figure 2
Trend of Potential Support Ratio



of PSR (Figure 2) implies that the increasing rate of elderly is higher than increasing rate of active population. Also this decreasing pattern of PSR may be due to population aging at peak. A decreasing trend of child support ratio (CSR) has been observed during the period 1951 to 1974. On the other hand, an increasing trend of CSR has also been observed from 1981 to 2001. Both the trends are very slow except in 1974. The increasing trend of CSR implies that either active force is increasing or the number of children is decreasing. Due to family planning for the last few decades, the number of children is significantly decreased. Our analysis also supports this claim. The active population shows a very slow increasing trend over the study period according to measure P15–59. The elderly sex ratio (ESER) does not show any specific trend (Table 1).

Table 1
Trend in Demographic Support Ratio of Aging Process in Bangladesh

Year	PSR	CSR	TSR	ESER	P15–59	YOR
1951	12.06516	1.269405	1.148562	1.226619	0.534572	950.4577
1961	9.327931	1.055759	0.948415	1.229412	0.486762	883.5281
1974	8.145921	0.961452	0.859953	1.298584	0.462352	847.2517
1981	8.483996	1.02495	0.914473	1.277159	0.477663	827.7472
1991	9.078743	1.086129	0.970075	1.200146	0.492405	835.8809
2001	8.899078	1.386485	1.199588	1.244234	0.545365	641.8445

Urban-rural Disparity in Support Capacity

The urban-rural differences in demographic support generally exist due to rapid urbanisation for the last few decades. Various measures of support capacity with respect to locality (urban-rural) has been displayed in Table 2. A sharp increasing trend of active population has been observed in both urban and rural areas of the country. The urban has more active population than rural (Figure 3). This is because of active population move to urban from rural for employment and other facilities. A decreasing trend of young old ratio (YOR) has been observed in both urban and rural areas of the country (Figure 4). The YOR is greater in urban than in rural sub population which implies that urban has more support to the elderly than rural population. This is because urban has fewer elderly than rural. The YOR was 1081 and 875 in urban and rural respectively in 1961. The ratio was come down to 707 and 625 in 2001. Therefore it can be concluded that the elderly support is significantly decreased in both

Figure 3

Trend of Active Population with Respect to Locality

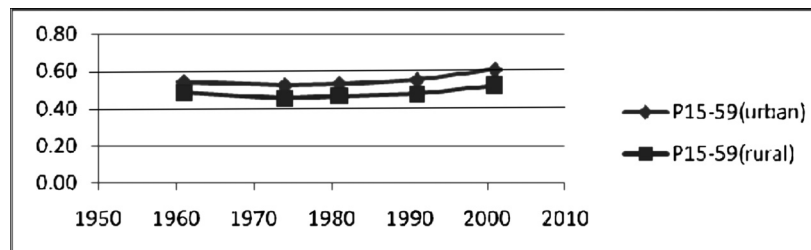


Figure 4

Trend of YOR with Respect to Locality

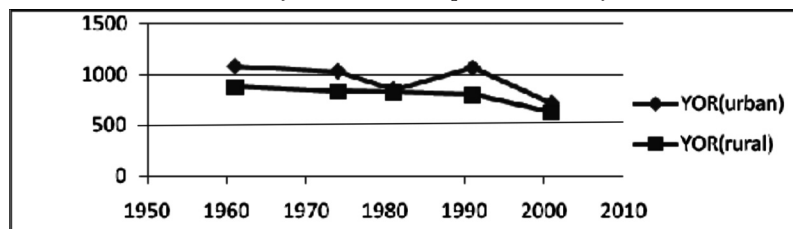
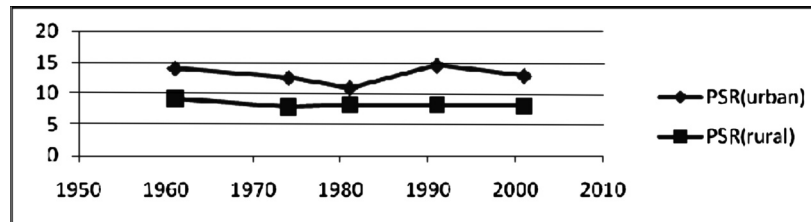


Figure 5
Trend of PSR with Respect to Locality



urban-rural areas. Like YOR, the potential support ratio (PSR) is greater in urban than in rural (Figure 5). This is due to more active population in urban than in rural. Interestingly the PSR has no specific trend over the period 1961 to 2001. The current trend of PSR may be continued for next few decades since the county's demographic transition started recently. Like PSR, the child support ratio (CSR) has greater in urban than in rural. The trend of CSR is not clear over the period 1961 to 2001. The total support ratio (TSR) shows the similar pattern and variation of urban-rural sub population (Table 2). So, it is clear that there exist a variation in support capacity with respect to urban and rural area of the country.

Table 2
*Trend in Demographic Support Ratio of Aging Process
with Respect to Locality*

Year	Locality	PSR	CSR	TSR	ESER	P15-59	YOR
1961	Urban	14.07843	1.301904	1.191701	1.348837	0.543733	1081.373
	Rural	9.137985	1.043558	0.936598	1.226003	0.483631	875.6566
1974	Urban	12.53232	1.214444	1.107155	1.390909	0.525426	1031.939
	Rural	7.842119	0.939826	0.839247	1.292447	0.456306	834.4228
1981	Urban	10.89043	1.277748	1.143575	1.408922	0.53349	852.3148
	Rural	8.119831	0.985176	0.878578	1.259023	0.467683	824.2011
1991	Urban	14.52695	1.361086	1.244485	1.40634	0.554464	1067.305
	Rural	8.205566	1.027248	0.912956	1.257366	0.477249	798.7908
2001	Urban	12.82966	1.788719	1.56985	1.324232	0.610872	717.254
	Rural	8.039499	1.285593	1.108356	1.227468	0.525691	625.3532

Gender Disparity in Demographic Support Capacity

Male-female variations in demographic support to elderly are not unexpected in the aging process. Various measures of support capacity with respect to sex have been presented in Table 3. An increasing trend of active population has been observed in both male and female areas of the country. Male active population is higher than female for the period 1951 to 1981 but the scenario is reversed after 1981 (Figure 6). A downward trend of young old ratio (YOR) of male population has been observed over the study period except in 1991. A similar trend of YOR of female population has also been observed over the period 1951 to 2001 in the country (Figure 7). The declining trend of YOR implies that either children is decreasing or elderly is increasing. The potential support ratio (PSR) for male and female sub population does not show any specific trend over time. This ratio is greater in female than male sub population. Like PSR, the child support ratio (CSR) has no specific trend and is more or less stable over the study period. Female has poor child support capacity than male over the study period except in 1981 and 1991. Male children are getting more

Figure 6

Trend of P15-59 with Respect to Sex

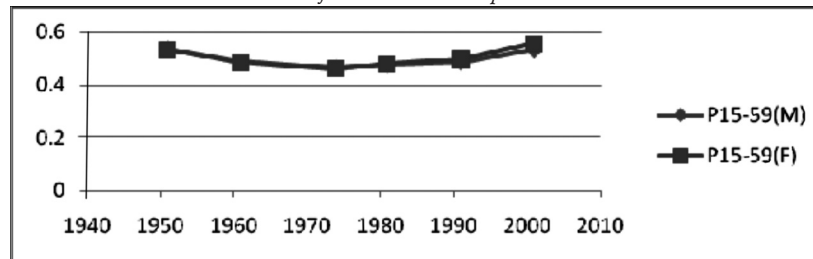
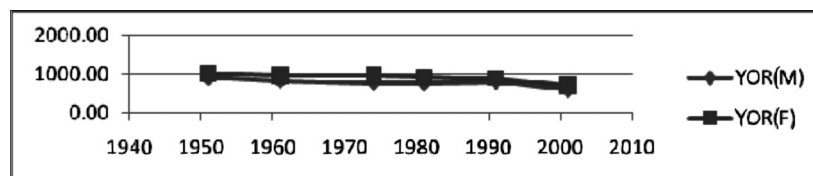


Figure 7

Trend of YOR with Respect to Sex



support than female children. No gender gap is found according to total support ratio (TSR) during the study period (Table 3). All the measures of support capacity except TSR show a variation in male-female sub population in the country as well as in urban-rural areas. So in future, TSR also shows gender difference in the country since the demographic transition has been started recently.

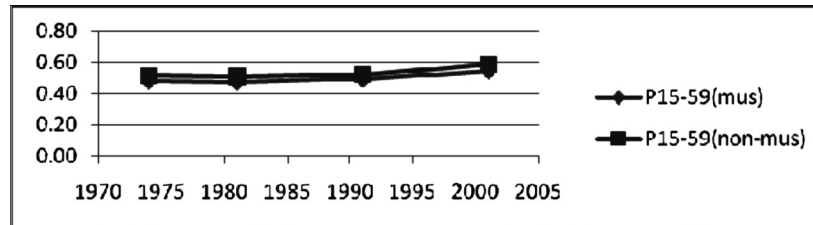
Table 3
Trend in Demographic Support Ratio of Aging Process with Respect Sex

<i>Year</i>	<i>Sex</i>	<i>PSR</i>	<i>CSR</i>	<i>TSR</i>	<i>P15-59</i>	<i>YOR</i>
1951	Male	11.45552	1.277275	1.149147	0.534699	896.8719
	Female	12.81295	1.260885	1.147921	0.534434	1016.187
1961	Male	8.767601	1.063687	0.948602	0.486812	824.2652
	Female	10.01681	1.04736	0.948214	0.486709	956.3866
1974	Male	7.494328	0.975855	0.863426	0.463354	767.9756
	Female	8.992068	0.946336	0.856226	0.461272	950.1983
1981	Male	7.746274	1.02167	0.902622	0.474409	758.197
	Female	9.426184	1.028415	0.92725	0.481126	916.5738
1991	Male	8.446028	1.064712	0.945519	0.486007	793.2686
	Female	9.838369	1.109123	0.996754	0.499178	887.0404
2001	Male	8.099335	1.363062	1.166712	0.533406	594.2015
	Female	9.894145	1.411184	1.235034	0.558109	701.1236

Religious Disparity in Support Capacity

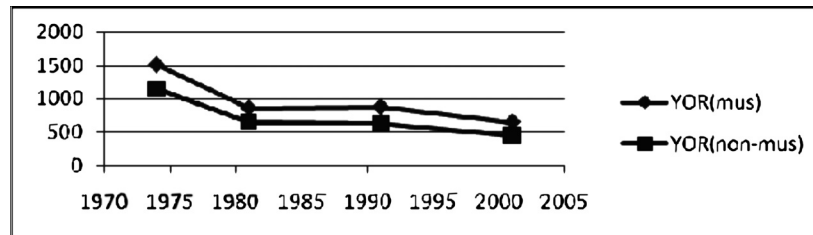
There may exist variation of support capacity in aging process with respect to religious community. Our study also supports this claim. Demographic support ratio with respect to religious community has been presented in Table 4. An increasing trend of active population has been observed for both muslim and non-muslim community. Non muslim community shows more active population compared to muslim community (Figure 8). The young-old ratio (YOR) shows a declining trend for Non-Muslim community. Like non-Muslim community, Muslim community shows the similar pattern of support capacity to their elderly except in 1991 (Figure 9). The YOR was 1510 and 1144 in 1974 for Muslim and non-Muslim community respectively whereas the ratio was 653 and 456 in 2001.

Figure 8
Trend of P15-59 with Respect to Religious Community



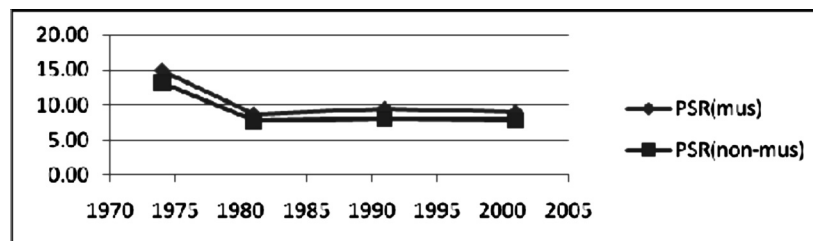
According to YOR, non-Muslim community has poor support

Figure 9
Trend of YOR with Respect to Religious Community



capacity than Muslim community. This indirectly implies that there are more elderly or less children in Non-Muslim community than Muslim community. Like the YOR, the potential support ratio (PSR) is poor in non-Muslim than Muslim community (Figure 10). The PSR was 15 and 13 in 1974 for Muslim and non-Muslim community

Figure 10
Trend Of Psr With Respect To Religious Community



respectively and then declined as 9 and 8 in 1981, the ratio was more or less stable during the last few decades of the study period. The child support ratio (CSR) shows an increasing trend for both muslim and non-muslim community over the study period. The CSR is higher in non muslim community than muslim community (Table 4). From the above analysis it can be concluded that demographic support capacity varies with respect to major religious communities.

Table 4
Trend in Support Ratio of Aging Process Respect to Religious Community

<i>Year</i>	<i>Religious Community</i>	<i>PSR</i>	<i>CSR</i>	<i>TSR</i>	<i>P15-59</i>	<i>YOR</i>
1974	Muslim	14.93947	0.988823	0.927437	0.481176	1510.834
	Non-muslim	13.13971	1.148212	1.055939	0.513604	1144.363
1981	Muslim	8.633156	1.002666	0.898333	0.473222	861.0198
	Non muslim	7.691906	1.185275	1.027018	0.506664	648.9556
1991	Muslim	9.442032	1.074399	0.964634	0.491005	878.8202
	Non muslim	7.957055	1.263148	1.090099	0.521554	629.9387
2001	Muslim	8.951169	1.370333	1.188401	0.543045	653.211
	Non muslim	7.789907	1.708992	1.401519	0.583597	455.8187

Conclusion

The overall support (SR) shows a decreasing trend over the time. The potential support ratio (PSR) shows a decreasing trend. The highest support ratio was observed in 1951 and the lowest in 1974. This decreasing trend of support ratio may be due to population ageing at peak. The ratio is greater in urban than in rural. The ratio is higher in female than in male. The potential support ratio (PSR) is poor in non muslim community than muslim community. But in developing country like Bangladesh, many elderly people as well as children support their family. A decreasing trend of young-old ratio (YOR) has been observed in the country as well as its urban-rural sub-population. The ratio is greater in urban than in rural. On the other hand, a smooth increasing trend of active population has been observed in urban-rural area of the country. The urban has more active population than rural. Male active population is higher than female for the period 1951 to 1981 but the scenario is reversed after

1981. Muslim community shows less active population than non muslim community. Therefore, one may conclude that population ageing has significant impact on demographic dividend and support capacity. It can be recommended that Bangladesh government should take initiative to tackle the situation of negative impact of population ageing in near future.

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Deprivation and Disempowerment—A matter of Conscience and Concern

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ABSTRACT

Ageing—a process and phase in the life cycle of each and every living entity. Since women outlive men in almost every part of the globe, they are more prone to the attack of ageing. Their vulnerability will be doubled or tripled if they are subjected to various forms of abuse. In this study the researchers aim to highlight the instances with which how the deprivation of rights resulted in disempowering the elderly widows in Kerala. The study was conducted on '250' elderly widows selected through systematic sampling from the district of Kottayam. The study revealed that widows experienced different forms of deprivations. For example they experienced the deprivation of right to live decently and meaningfully. Inhumane treatment and torture, disturbed family life and economic in security to sustain themselves in a better way and poor health was reported by these subjects.

Key Words: Deprivation of Rights, Disempowerment, Elderly Widows, Kerala, Infantilization

With the transformation of human society from savaged to civilized, there occurred significant changes in the horizon of human affairs. Man as a social animal has undergone all the savage behaviour and other hard experiences through centuries. No species in the

universe other than human beings which oppressed and suppressed the same species for centuries through abandoning their rights. At last, these oppressed got the opportunity to sigh a relief through the famous document called 'Declaration of Independence' which states that; we these truths to be self evident, that they are endowed by their creator with certain inalienable rights: that among these are life, liberty, and the pursuit of happiness. The Universal Declaration of Human Rights has acted as the predominant modern codification of commonly accepted human rights principles and many national and international documents, treaties and instruments that have expanded on its principles and act as a collective expression of widespread conception of human rights by the international community (Yadav & Kene, 2011).

By a careful examination of the rights enjoyed by people it became clear that these rights depend on certain fundamental characteristics of one's social conditions and a vast majority of the population still deprived of their basic rights. Only some people are aware about these rights while others are mere victims of deprivations and believe that it as a part of their life. Such a plight is more evident among older people especially widows, persons with disabilities, migrant workers, sexual minorities, etc. They are alienated, isolated and abused simply because of the purposeful negligence or the failure of the supporting system in recognizing their basic rights.

The complexity of elder mistreatment is early understood via the work of Hudson and Carlson (1999). They propose a theoretical taxonomy that distinguishes five levels to understanding such behaviour. The levels move from the general to the specific. The general form is broadly termed mistreatment, while specific forms distinguish whether the mistreatment occurs through relationship with personal/informal sources or professional/formal providers. Mistreatment is then further defined as abuse or neglect, an intentional or unintentional. Finally, the specific forms of destructive behaviour—physical, emotional, psychological and financial—are identified (Judith Phillips, *et al.*, 2010).

It is now widely recognized that no one theory may fully explain the occurrence of elder mistreatment. Wolf (2003) proposes that what must be taken in to account are individual, social and cultural aspects

in a given situation. It is increasingly accepted that accounting for factors in several domains may represent the best approach to understanding such a complex construct. One must also consider the nature of inter personal relationships, as explained by Situational Theory (referring to care giver stress and the overburdened informal care giver) and Exchange Theory (referring the dependencies that exist between a victim and a perpetrator), both of which take place in a particular socio—historical time period, as potentially explained by Political Economic theory (referring to the marginalization of elders in society). Multiple factors, considered in tandem, may provide the most informed understanding of elder mistreatment (Ibid.).

Regarding the violation of basic rights, the most victimized and vulnerable group among our population are elderly widows. It can be said that there is no more affected by the sin of omission than widows. They are painfully absent from the statistics of many developing countries, un noticed by researchers, neglected by national and local authorities and they are rarely mentioned in the multitude of reports on women's poverty, development, health or human rights published in the last two decades.

Women outlive men in almost all countries of the world. This gap definitely has an impact on the status of women that older women are more likely than not to be widows and this likelihood increases with age. This means that they are more likely to be dependent upon social support, to live in isolation, to be deprived of or unable to maintain any resources they may have enjoyed (Gorman, 1999). They are likely to spend much of their older lives in a disabled state and are more susceptible to depression and psychological problems due to their isolation and reduced status.

As a vulnerable segment of the population, elderly widows confronted with instances of violation of human rights especially from their own family members either through forcing them to do something against their wish or preventing them from making their own decisions. Since they are weak, isolated and segregated such incidents are not often identified. Being a non-sensational item such news are went un noticed or incorporated the inner pages of news papers and are often taped with criminal records, social welfare records and small scale studies.

Methods

Sample

According to the 2001 census, 12 per cent of the population of Kerala is above the age of 60 years. Of these, majority are females (55.5%). Among them 89.8 per cent are widows. The universe of the present study consists of widows aged 60 and above who are the permanent residents of Kerala for the last 10 years. The Kottayam district was selected for study and for convenience it was again classified in to rural and urban area and a sample of '125' was selected from each. Accordingly a sample size of '250' was selected from the voters list through systematic sampling.

Tool Used

A semi structured interview schedule was prepared for data collection. All the respondents were interviewed personally using the schedule. In relevant cases observation and personal conversation were also carried out for gathering vital information from the respondents.

Results and Discussions

The review of literatures collected and the analysis of information gathered from respondents revealed the challenges they are encountering while dealing with the individual rights such as right to live decently & meaningfully, freedom from inhumane treatment & torture, right to continue family life, economic security and the ability to sustain a better health status. The following findings will reveal their plight in a detailed way.

Table 1
Distribution of Elderly Widows by their Age and Area of Residence

<i>Area</i>			<i>Age</i>					
Belongs	60-69	%	70-79	%	>80 years	%	Total	%
Rural	66	26.4	40	16	19	7.6	125	50
Urban	74	29.6	37	14.8	14	5.6	125	50
Total	140	56	77	30.8	33	13.2	250	100

Right to Live Decently and Meaningfully

A peaceful environment, clean and safe water, healthy and balanced food, etc., are the basic necessities ensured for each and every

individual for a healthy and decent living. Instead of viewing it as a favour, consider it as an element to be ensured to elderly members especially to those who are experiencing the additional burden of widowhood. Right to get proper health care facilities, supporting system, opportunity to participate in decisions concerning family matters are vital indicators in this regard.

Due to socio-cultural, emotional and psychological barriers, parents would not like to make their condition known, as they would not like their children to suffer from loss of status. They are tied to the family for emotional reasons, rationalizing the behaviour of their children, believing that such a treatment is a matter of destiny, or that there must have been some lapses in the upbringing of their son which has made him hostile, and/or entirely submissive to the daughter-in-law's attitude. They would not like to brooch the subject with relatives and acquaintances for moving to an old age home because they consider it a loss of dignity for the family (Bose, 2006).

There is no wrong here to add the case of *Mary*, one of the respondents, who in her own words, lives like a loser in a totally undignified life. Mother of four sons, she is now staying with her second son giving all her valuables including the property to him. Since then she is subjected to both verbal and physical torture from her son and granddaughter. In a private conversation she lamented with tears that even the neighbours too view her as an irritant and often remarked that, "instead of making such troubles go and let you end your life by yourself."

In his article, Harsh Mander (2012) viewed that, "a widowed woman is not treated with respect and a lot of restrictions are imposed upon her. At times, she is still expected to shave her head, wear extremely simple and coarse white clothes so as to effectively desexualize her. To make matters worse, paradoxically, widows across cultures are viewed as sexually 'available' and routinely subjected to sexual harassment and abuse, within their husband's family and outside as well; especially she goes out of her home to work". As a proof to the above opinion, about 3 per cent of the respondents, in clandestine, accepted that they had experienced sexual abuse even from outside their home. For somebody it was in the form of obscene

languages and sexually coloured remarks, while others experienced it as pornographic symbols or exhibition of sexual organs.

Table 2
Distribution of Respondents by their Age and Nature of Abuse

Age	Nature of Abuse									
	Verbal	%	Physical	%	Sexual	%	No	%	Total	%
60-69	49	19.6	24	9.6	6	2.4	61	24.4	140	56
70-79	35	14	18	7.2	1	0.4	23	9.2	77	30.8
>80 years	18	7.2	4	1.6	-	-	11	4.4	33	13.2
Total	102	40.8	46	18.4	7	2.8	95	38	250	100

Freedom from Inhumane treatment and Torture

There is a dilemma among the elderly widows that those rights guaranteed to the general population are applicable to them or not. Irrespective to rural-urban differences they are experiencing abuse and ill treatment from their own children, in-laws, relatives and rarely from neighbours also. Sometimes they may be direct and most often seems to be indirect in nature. Though the instances of physical torture was not reported, more than half of them remarked that verbal abuse was a common scene in their daily life. Regardless of age, almost all of them believe it as a shame and showed reluctance to report it even to their close relatives. Only few of them shared such incidences with their relatives/neighbours. They also remarked that it was often questioned by their in-laws and was projected out for future issues. Out of the above mentioned category, a nominal number mourned that being old and dependent; they had experienced the verbal assaults even from neighbours. They often use statements like, "instead of making burdens to your family let you end your life by yourself". It is so shameful that these are happening in a place which is projecting itself as the most literate one among the Indian states.

Forms of infantilization are another form of abuse confronted by these invisible populations. In a careful observation it can be ascertained that '5 out of 250' respondents, were subjected to such a form of mistreatment. There is a habit among the care givers to force the

elderly to wear baby's dresses, using adult diapers, consume tasteless porridges, etc. The extent of dignity given to such a vulnerable population can be assessed only in terms of humanitarian considerations. As an example, The British Human Rights Institute tells of a nursing home in London that had a practice of placing all inmates in Wheel chairs, regardless of whether they were able to walk or not. This obviously limited their mobility and ability to make decisions for them, in particular about when they wanted to go to bathroom (Megret 2009).

Right to Family Life

The discussion on the information so collected revealed the importance of family. While asking about the role and importance of family as a primary care giver, without hesitation all of them stated that they still believe and wish to continue with their family as far as possible. Though there are respondents who live separately or alone and are economically independent accepted that, if the relationship between the inmates be healthy, family is the most effective care giver and protector of each individual. Meanwhile, they revealed the agony in putting restrictions and forceful separation from other children/relatives. In some cases, where the son/daughter migrated abroad leaving their widowed mother alone under the care of servants, the plight is more critical and vulnerable. There are incidences like putting restrictions to attend telephone calls/conversing freely with children/relatives due to the fear of reporting such incidents to them.

In contrast, there are events in which the mother was forced to shift her residence periodically from one child to the other. In both the above cases, the net effect is not physical but psychological deterioration of the person. Disputes with sons/daughters in property rights/partition of properties were another issue that disturbed a peaceful and healthy family life. In some cases the interferences of relatives only resulted in aggravating the problem rather than solving it. The unnecessary delay from the side of judiciary seems to be an act of denial of justice to them.

Economic Insecurity

Being economically dependent and insecure makes their vulnerability more crucial. It is more severe among the widows belongs to rural areas. Except for the service/family pensioners, the rest in urban area also experienced certain forms of hardships. Even though more than 50 per cent of the respondents were eligible for widow pension, the amount seems to be so meager that none of them could meet their requirements with this purse. As long as the mismatch between the income and expenditure existed their penury continues.

As Bose (2006) pointed out in his book, the family obligations of children were changed with their increased financial responsibility. A wide range of expenses have to be met by children. Sons have to shoulder the responsibility of educating their children which may extend to 20 to 25 years, and require large expenses as good education and training come at a price. In urban areas, they are further required to meet increased cost of rent, transportation and other expenses. They also need to save for meeting their needs in old age, and invest in housing for a place to stay after retirement from economic activity. When parents stay on the same household as the son, discriminating care can arise.

The exclusion from mainstream financial institutions is another instance of denying their right. Irrespective to their sex elderly population are devoid of right in availing credit from public sector banks. In some cases, widows can become liable for the repaying the debt of their deceased husband. Though the micro finance institutions grants loan to its elderly members, they fixed a ceiling to the amount issued.

Degenerated Health Status

An unhealthy body only creates an unhealthy mind, which is full of agony and deprivation. Fear of loneliness and future are the two major thoughts agitating their fragile mind. It is really a concern that none of the respondents, regardless of their dependence, accepted that they are experiencing a state of well being. The only difference was in the degree or extent of sufferings from health related issues. The nature of health problems varies from joint pains to chronic diseases like congenial heart diseases, kidney failure, cancer, etc. More than 80 per cent of the respondents revealed that they are suffering either from

high/low blood Pressure or diabetics. Problem like slipped disk, arthritis, and stomach problems are not uncommon. Since they are economically unstable and dependent, majority of them are availing the facilities provided at Government hospitals. Shortage of medicines, lack of doctors, unending queue in hospitals, etc., adds their miseries to further extent.

Deprivation—Penury—Disempowerment: these are issues which are intertwined and get accumulated if not checked out. For a vulnerable population the problems seemed to be invisible same as that of the victims themselves. Getting older is really a matter of concern, often widowhood makes it more worse. Neglected by national/local authorities and mostly overlooked by civil society organizations the situation of elderly widows really is destitute.

Here a group of mothers, often holding the double sin of widowhood, subjected to different forms of abuse either from their family members or outsiders. It varies from the common form of verbal abuse to physical and for extreme cases sexual abuse also reported. Denial of food, keeping separate utensils, showing lack of care and neglect, non inclusion in family decision-making, demanding their share in family expenses, etc., were worth to mention here. Moreover, these deprived groups are in the brim of a high risk category in terms of their degenerated health status. In addition to these manifest incidences, they are experiencing hidden turbulences like unexpected demise of their spouse, fear of isolation and death, and the slow and silent attack of depression and dementia. Normally those seemed to be good for us found to be bad for them and right becomes wrong. Here lies the significance of forming a conscience to pacify the concern. For any positive move to get an insight in to their issues and there by empowering them we need solid information and vital statistics generated through empirical research.

Suggestions

Setting up of grass-root level working groups to address the issues of elderly population especially widows, careful monitoring of incidences of abuse, their resolution, etc., are the need of the hour.

The newly initiated Community Policing Programme should be extended to issues related to elderly abuse and torturing. The frequent

visits of Beat Officers and Assistants will be helpful in seeking out such incidences.

Like Paediatrics initiatives should be taken to develop Geriatrics in to a super-speciality branch dealing with the issues of elderly populations and setting up a department of such kind in all medical colleges, general hospitals and district hospitals.

Celebrating International Widows Day on June 23rd from the year 2011 is really offering an opportunity for action towards achieving full right and recognition for widows, especially elder ones—too long invisible, uncounted and ignored.

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Factors Affecting Clothing Choices of Elderly Females

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ABSTRACT

As a person ages, usually agility decreases. Proper clothing for this time in life is vitally important to one's overall well-being and happiness. Attractive clothing that fits well is important for senior citizens, but they also desire clothing that improves functional independence, offers ease in dressing and undressing, provides physical and thermal comfort and contributes to ease in performing routine duties.

Key Words: Agility, Clothing, Thermal comfort

The number and percentage of women of 60 years of age and above, in the total population has increased greatly in recent years. Therefore changes in demographics, growing numbers and the share of people over 60, resulted in increased interest with this age group of population.

Clothing preferences and problems of this age group have not received the consideration and study given to other age levels. Clothing designed especially for the elderly is non-existent inspite of the fact that every day a large number of men and women pass their

sixty-fifth birthday and move into the great fraternity of the young olds.

A limited number of studies have been reported in which the clothing preferences of elderly women were studied. However few studies were found in which the interest and importance of clothing to elder women were investigated. The literature included in this chapter was selected on the basis of its relevance to the study. The cited literature has been discussed under following headings:

1. Ageing (Terminology)
2. Physiological changes during old age
3. Social changes during old age
4. Emotional and psychological changes during old age
 - (i) Feeling of loneliness
 - (iii) Life satisfaction
 - (iv) Loss of self-esteem and economic independence
5. Factors affecting size and content of elderly women's wardrobe
6. Clothing choices for elderly

Ageing (Terminology)

Ageing is the accumulation of changes in an organism or object over time. Ageing in human refers to a multidimensional process of physical, psychological and social change. Some dimensions of ageing grow and expand over time while others decline. Reaction time, for example, may slow with age, while knowledge of world events and wisdom may expand. Research shows that even late in life potential exists for physical, mental and social growth and development. Ageing is an important part of all human societies not only reflecting the biological changes that occur, but also reflecting cultural and societal conventions (Pamela and Laura, 1993).

Physiological Changes During Old Age

Every human being passes through various stages in his life time and there are physical changes from one age group to another.

Heaton (1997) reported that as the body ages, it gradually declines in condition and function. Overall body movement becomes slower

and less steady. Reflexes are slower and muscle strength decreases. These conditions tend to result in a more sedentary lifestyle. Major changes occurring are:

Sense Organs

The senses decline with age. Eyesight may be compromised by cataracts, glaucoma or other health problems. Hearing tends to decline as a result of nerve and vascular degeneration. One's sense of smell becomes less sensitive and the skin becomes thin, dry and inelastic (Ibid.).

Body Posture and Mobility

One of the most noticeable changes as one grows older is that the body grows shorter. A corresponding loss in height is characteristics of ageing women. This loss in height is caused by a progressive bending and shortening of the spinal column, a bowing of the head and a general involution of the skeleton. Also, there is a gradual degeneration of the cartilage tissue, with a consequent calcification of the cartilage. The cartilage disks between the vertebrae become thinner and smaller. At the same time the fibers of the muscles atrophy and are increasingly replaced by connective tissue and the result is a stiffening of the joints, a tendency to become easily fatigued and general symptoms of physical weakness. These changes affect both the posture and mobility of the older persons, so he walks more slowly and with increasing difficulty.

Ageing makes the body more susceptible to diseases and illness. Osteoporosis, a thinning of the bone mass, can affect the posture and body structure while arthritis can attack joints, making movement difficult or painful (Ibid.).

Body Proportion

Johnson (2002) reported that significant physical changes gradually occur as seniors progress past middle age. Most of these changes are in body proportion and function. Changes include the following: the face thins as the neck thickens, the abdomen becomes larger and the legs thin. The waistline thickens and hair colour

changes. In women, breasts elongate and lose firmness. Men often have protruding stomachs and hips lose firmness.

Dwivedi and Lunia (2007) asserted that ladies face more changes as their body structures are made so. Major physical changes which occur include lines and wrinkles on face, changes in size and proportion of figure, increase in weight, decrease in height, downwards movement of body fat, increase in bust and change in shape of body as it becomes almost pear shaped.

Social Changes During Old Age

The physical changes that older adults experience have a direct effect on social relationships in this age group. Physical limitations may impair or disrupt social activities one has enjoyed over the years. Relationship changes throughout life but the changes occurring during the later years may be more difficult to accept because the relationships have lasted so long. An older person's contemporaries die at a high rate, creating a feeling of despair. Changes also occur as a result of retirement, death of family members or the breakup of close friends and these can be very upsetting (Heaton, 1997).

Emotional and Psychological Changes During Old Age

Emotional well-being is a function of self-worth, one's outlook for life and perceived control of one's destiny. In the study of ageing, gerontologists have identified several common reactions of the elderly to stressful changes as retirement, declining physical ability, changes in physical appearance, perceived or real loss of control of one's life and the loss of loved ones. Typical reactions may include withdrawal, apathy, loss of self-esteem and depression (Ibid.).

Feeling of Loneliness

Ramamurti (1997) stated that breaking down of the joint family system took away the social and economic security of the elderly and affected their social network and contributed to the feeling of loneliness.

Khanna, *et al.*, (1997) concluded that due to feeling of loneliness and loss of authoritative status, a large percentage of elderly suffer with depression.

Life's Satisfaction

Chadha (1991) quoted that the degree of satisfaction with one's own life determines the state of health in old age. The fulfillment of most of the goals that one would have set up for himself in life, provide him satisfaction while large number of unfinished tasks leads to dis-satisfaction and which further leads to frustration.

Loss of Self Esteem and Economic Independence

Chadha and Mongia (1997) stated that aged are concerned with economic inadequacy due to retirement and this makes it difficult for the elderly as it signifies loss of role, status, power and occupational identity. It may even lead to social isolation and feeling of helplessness or depression due to the shift in the role from financial independence to economic dependence.

With retirement, elderly person experience a loss of self esteem. As physical strength, mobility and financial resources diminish and dependence on other person increases. Elderly often feel powerless, unable to make decisions and this leads to frustration (Khanna *et al.*, 1997).

Factors Affecting the Size and Content of Elderly Women's Wardrobe

Dwivedi and Lunia (2007) reported that after attaining age, body structure of the old ladies becomes changed and abdomen bulges out, body stoops, shoulders become sloping, buttocks enlarge and waist becomes large. Due to these changes old ladies face many fitting problems, like blouse hangs in front and moves upward in back, shoulder line hangs due to low bust point blouse or upper garment does not fit properly. Due to change in physique these old ladies become psychologically disturbed a lot.

Older women may have a sagged bustline, increased waist and hip measurements, and rounded shoulders. Therefore, camouflage is necessary; less extreme lines and styles and looser dresses are generally pleasing.

Senior and Retirement Living often means a change in fashion needs. As a woman continues to age, several factors may affect her

fashion needs and might cause the need for more revisions in her wardrobe:

Health issues—Changes in energy levels and reactions to medications can make it difficult to dress and perform personal care activities.

Cooler body temperatures—Older women often find it harder to stay warm and they look for warmer clothes.

Movement challenges—Arthritis, muscular weakness or medical issues can make it complicated, if not impossible, for a woman to get dressed and to operate bra closures and buttons.

Mobility challenges—A woman may need clothes that are easy to put on and put off from a seated position.

Clothing Choices for the Elderly

Aesthetically, clothing can serve three functions for the older person: call attention to one's good features, camouflage poor features and give a psychological lift.

Older people have the right to make choices about their clothing. As a caregiver, one should help them plan for the types of clothing that will make them feel good about their appearance and that will be easy to wear and care for. When selecting clothing for older people, one should consider the person's need for clothing that he or she enjoys, clothing that enhances appearance, increases independence, allows for function and provides comfort, the quality as well as quantity of clothing, the availability and accessibility of clothing storage space and the type of care the clothing requires.

Older adults spend only about 6 per cent of their income on clothing and as a result generally have smaller wardrobes than any other age groups. Choosing comfortable, easy to put on and with an appropriate fit items of clothing becomes very important to maximize the use of a limited wardrobe.

Comfort is often named as the primary factor when seniors are choosing their clothes. Once they retire, there is no longer a need to dress for the professional environment. Many seniors look forward to the freedom of dressing as they see fit after spending many years limited to wearing business suits or uniforms, depending on the company's dress code (Carser, 2008).

Physical Comfort

Clothing can help people adjust to temperature variations in their environment. In order to be comfortable, many older people need clothing that provides extra warmth. Clothing helps insulate the body by trapping and holding body heat in dead air spaces between the body and layers of clothing.

For cold environments, one should consider pile fabrics such as terry cloth, long sleeve shirts, sweaters, etc; clothing that can be layered, insulated socks, slippers and gloves, thermal underwear, warm head coverings and soft fabrics such as sweat shirt fleece, etc.

For warm environments, one should consider light-weight cotton or cotton blends and loose or semi-fitted clothes (Pamela and Laura, 1993)

Safety

Safety from fire is a special concern for older people. Some may lack the agility to step away from a spark or flame source quickly enough to avoid having their clothing ignite. Lightweight, thin or napped fabrics catch fire most readily. Wool has some natural flame resistance. However, unless clothing is labeled flame resistant, one should assume all clothing will burn readily. Flame resistant clothing is a good choice for people who smoke, but is not widely available.

Another safety concern is prevention against falls or mechanical entrapment from clothing entanglement. Much of today's clothing is so strong that it doesn't tear easily. Some people may not have sufficient strength and stability to prevent injury if they were pulled off balance. The safe choice is clothing that fits close to the body (Ibid.).

Frequent Spills and Diminished Agility

Heaton (1997) suggested the use of printed or textured fabrics to camouflage spots and stains. Lightweight, non-bulky fabrics should be considered. Smooth, slick fabric surfaces and static-free, non-cling fabrics are desirable.

Fabrics with soil-release finishes, flame-retardant fabrics, water-repellent outerwear; easy-care (wash-and wear) fabrics and interesting garment styles are desirable.

Clothes should be light in weight so that they are less tiring to wear. They should be warm to compensate for lowered activity and cold bloodedness and flexible enough for comfort in movement. Soft fabrics and construction processes that do not irritate the skin should be used.

The following clothing suggestions are given to compensate for:

Loss of Visual Acuity

Fabrics that vary in texture to assist with garment identification though the sense of touch should be used. Shoes and accessories arranged or tagged to be identified by touching are desirable.

Limited Sense of Smell

Easy-care garments and fabrics should be used and fabrics that do not retain or absorb odors easily should be preferred (pile, fuzzy or wooly surfaces should be avoided).

Reduced Energy Level

Fabrics requiring minimal care and upkeep are needed. Fabrics and garment designs which facilitate dressing and undressing should be used and lightweight fabrics are especially important for those with little or no energy.

Changes in Body Structure

Fabrics with elasticity or stretch are required. Knits work better than most woven fabrics and garments as close to body proportions as possible should be purchased.

Increased Sensitivity of Skin

Non-irritating fabrics and garment components; soft, smooth-surface fabrics such as flannelette, cotton jersey, brushed nylon, voile, etc., should be used.

Fine worsted wool rather than coarse woolen variety are desirable as worsteds which are often more expensive but do not feel as scratchy.

For highly sensitive persons, fabric to which no potentially allergic finishes or dyes have been applied should be used. All new

garments must be laundered or dry cleaned before wearing. Repeated washings may help minimize some problems. Clothing should be rinsed several times to remove all traces of detergent.

Garments made with transparent thread should be avoided as they may scratch. Ruffles at collars or cuffs, snug-fitting elastic casings, snug waistlines and belts and high necklines are not desirable (Heaton, 1997)

Johnson (2002) suggested the use of lightweight yet warm fabrics because of seniors' increased sensitivity to cool temperatures. Light but well-insulated fabrics give warmth without added weight.

Soft and smooth textures that are easy to care for are often easier to pull on and handle, should be used. Undergarments that offer easier wearing are those with front closures and wider straps. Boxer shorts are recommended for men and cotton jersey briefs with cotton crotch are recommended for women.

Aesthetic Factors

Colours should be soft and attractive, carefully chosen to flatter skin and hair tones. Nondescript colours and prints should be avoided. Clothing should be such that it enhances appearance and personality of the wearer.

Bright colours have been found to give a psychological lift and a feeling of self-confidence. Some examples are true tones of blue, red or green (Ibid.).

The becomingness of clothing depends somewhat on the physical changes due to age. Due to change in color of hair and skin different colors may now be flattering. Designs which emphasize the waist are generally not becoming.

Care Factors

Styles should be such that they allow room for figure changes for men and women both. Older person may not be able to care for own clothing or may find it difficult to do so, hence textiles and garments should be easily washable in machine or by a commercial laundry, disposable for many garments and items such as sheets, particularly in case of illness.

Apart from this garments should be wash and wear to facilitate care and fabrics which could easily be damaged by a too hot iron should be avoided.

Economic Factors

Clothing expenditures are usually lower for older age group than for any other group hence, value for price is important.

Necklines and Sleeves

Johnson (2002) suggested that V-necklines offer greater comfort to the neck area, especially when leaning forward. Raglan or kimono sleeves for elderly are desirable as they often provide greater comfort around the upper arm area.

Garment should style with ease, but not a lot of fullness should be used. Raglan style sleeves or garments with short sleeves, long, close-fitting sleeves or elastic at the sleeve hem should be used.

Openings and Fasteners

Clothing for elderly people should be concerned with seating dressing options as when an older adult has limited mobility or balance, getting dressed with regular clothes may be a challenge^[2]. Adaptive clothing can allow him or her to get dressed while remaining seated. These types of clothing items usually have open backs, making the act of dressing as stress free as possible for older adults who cannot stand up.

Incontinence is a problem that is shared by many elderly adults. Specialized clothes with Velcro or snaps allows for easy access and rapid changes on a regular basis.

Large openings, front openings, elastic waists, hook-and-loop closures, large pulls on zipper tabs should be provided in garments.

Openings in garments should be in front or should be amply large so that garment can be put on without undue strain. Closures should be designed so that they are manageable if fingers are stiff. Fabric and garment design should be adaptable to easy alterations.

Clothing for older people should be designed with their physical characteristics in mind. For example, garments that button down the front are a must for those who have difficulty in reaching back to open or close buttons or work a zipper or in raising their arms high enough to pull a garment over the head. Similarly, old hands find it hard to manipulate small buttons and fasteners. Clothing measurements must be dictated by the changed proportions of the older men or woman, since garments that once fitted have become too long through the upper part of the body.

Seniors with limited dexterity caused by arthritis, osteoporosis or other health problems may find standard clothing very difficult and frustrating to use. Elderly clothing items often fasten with velcro or snaps rather than zippers or buttons make it easier for senior with limited dexterity to dress themselves (Carser, 2008).

According to Johnson (2002) choosing good designs, especially in ready-to-wear clothes, is important for maximizing a limited wardrobe for elderly. Good clothing design features and fabrics offer helpful adaptations. Larger openings accommodate added neck fullness and forward head position.

Larger openings are also easier to pull on and off. Full center/front openings promote easier dressing and undressing. Elastic waists offer convenience and greater comfort. Easy-to-close fasteners can make a major difference in ease of use, with loss of dexterity. Some examples of easy-to-use fasteners include larger than average buttons, large zipper tabs, large hook and loop fasteners, hook and loop strips, such as Velcro.

Thus, some recommended fasteners for elderly include:

Zipper: Zipper opening fly front with a ring or string for easier operation with weak hands is recommended.

Buttons: Buttons should slip through the button holes easily. They should be large and somewhat textured for ease in grasping. A variety of ways have been invented to make them easier to grasp. For example, long shanks or small backing buttons may be used or two buttons can be put together as one. Elastic loops can be used instead of cloth loops or button holes.

Velcro: Velcro (pressure tapes) is easy to manage since pressure is needed rather than manual dexterity. Its thickness may make it less attractive than other fasteners for some uses. Velcro fasteners should always be closed before laundering.

Shoes for Elderly

Sturdy, relatively low-heel slip-on shoes or shoes with hook and loop closures should be used. Johnson (2002) asserts that shoes should be comfortable, lightweight and easy to pull on. Orthopedic shoes offer additional support.

Conclusion

Clothing that is neat, clean and fits well can boost anyone's morale. As the number of older people in the population increases, attention is drawn to the interests, needs and problems of this age group. There is a segment of the aged population that needs particular attention—the older woman. Old ladies face more physical problems than men because of their changed physical structure, i.e., change in their abdomen, shoulder, bust, waist, etc., which causes many fitting and wearing problems and in turn hurt their psychological needs. Thus, their needs and preferences regarding the clothing should be taken care of whenever selecting clothing for them.

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Social Support and Psychological Well-being Among Older Malay Women in Peninsular Malaysia

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ABSTRACT

Research shows older women are at increased risk for poor psychological well-being. The present study investigated the effects of social support on psychological well-being of a random sample of 716 older Malay women which obtained from a national survey. Findings from multiple regression analysis revealed a significant model ($F=15.06$, $p\leq.05$) where psychological well-being was best predicted by non-family support ($\beta=.22$, $p\leq.001$) and family support ($\beta=.10$, $P\leq.01$), after controlling for sociodemographic factors. Results of this study imply that social support especially from non-family source is a significant predictor of psychological well-being among older women.

Key Words: Older women, Social support, Psychological well-being,

In the 2000 Malaysian's Population Census, the mid-year population, stands at 23.2 million and 1,451,665 of them are older people (Department of Statistics, 2008). This means that one out of every 16 persons is an older person aged 60 years and above. Malaysia

records 7 per cent of older aged person 60 years and above in the year 2005 and this figure will double to 14 per cent in 2028. The full impact of ageing population will hit Malaysia in 2035, when 17 per cent of the total population is projected as the older person. The proportion of older persons has risen from 4.8 per cent in 1960 to 6.1 per cent in 2000. Of the 1.4 million older Malaysians, 758,541 of them are women, making up about 52.3 per cent of the national older person population. Life expectancy in 2005 for older female was 76 years and 71 years for male. Like many other countries worldwide, there are more older women in all age groups above 60 years and their proportion grows with increasing age. The proportion of older persons in the female population (6.6%) is higher than that of male population (5.8%).

Psychological well-being is an individual's global judgment about the quality of life that can function as a coping mechanism to mediate life stress. Results of the studies revealed a tendency for individuals with high levels of psychological well-being to engage in positive activities when managing daily life stress, to have a positive self-regard, and a sense of competence and control (Arunya & John, 2005). Andrews (2001) showed that psychological wellbeing is an important predictor for staying physically active at advanced ages and older person with high psychological well-being feel more confident in their ability to face challenges and may be better able to identify specific ways to response to events of life.

A shortcoming in the previous studies, which needs to be studied more, is related to social support as a factor influencing psychological well-being in old age. Although a growing body of literature in gerontological studies have recognized the importance of social support on psychological well-being of elderly people, we cannot claim that social support is always positive and has protective effects on psychological well-being (Kawachi & Berkman, 2001) because social support may operate like a double-edged sword (Revenson, *et al.*, 1991). According to some studies, social support can be seen as unhelpful (Williams, 1995) and disabling intervention (Neufeld & Harrison, 2009) which lead to sense of helplessness (Kawachi & Berkman, 2001), and may even increase psychological disturbance (Schilling, 1987) because in

old age people may not be able to pay back the help received from others due to limited resources. For instance, in a review, Schilling (1987) found that social support is a complex phenomenon with potential disadvantage. Particularly, social support received from children can paradoxically increase a sense of dependence in the elderly. Although social support may promote a sense of self-efficacy and self-esteem but it can become disabling by reinforcing dependence.

Additionally, some studies have found that negative side effect of social support brings more problem to psychological well-being and lower the capability to cope with life stress. For example, frequent contact with relatives and friends is interpreted as a high level of social support; however, there are some possibilities that such contact may disturb privacy of elderly people and lead to poor psychological well-being. Furthermore, older persons may not be able to compensate the rewards received, hence they might feel embarrassed and this may result in poor psychological well-being. Rook (1984) and Lincoln (2000) found that negative effect of social interaction were more strongly related to psychological well-being than positive social outcomes. In addition, Brown, *et al.*, (2003) showed that providing support not receiving support is significantly associated to health of elderly people.

A study on the importance and the effectiveness of various types of informal support on psychological well-being of different households circumstances (i.e., living alone, with spouse or relatives, in old urban areas or new towns, in private or public housing), showed that both objective and subjective measures of informal support were related to their psychological well-being, but subjective measures of informal social support were found to be more important (Phillips, *et al.*, 2008). Chen and Silverstein (2000) explored the relationship between intergenerational social support and psychological well-being of older Chinese parents. Findings reveal that providing instrumental support to children and satisfaction with children directly improve parents' well-being. The benefit of receiving support from children is fully mediated by parents' satisfaction with their children. The positive effects of providing functional support are magnified among parents who adhere to more traditional norms regarding family

support. The results suggest that the psychological benefits of intergenerational support exchanges should not be ignored when developing elder care policy in China.

In sum, it is not clear whether perceived social support will always be associated to better psychological well-being. Therefore, the purpose of this study was to examine the relationship between social support and psychological well-being among older Malay women in Peninsular Malaysia, after controlling possible sociodemographic factors.

Methodology

The data for this study, consisting of 716 community-dwelling older Malay women, were obtained from the national survey entitled “Patterns of Social Relationships and Psychological Well-Being Among Older Persons in Peninsular Malaysia”, which conducted in 2008. Details of this study have been published elsewhere (Momtaz, *et al.*, 2011a; Momtaz, *et al.*, 2011b).

Measurements

Psychological well-being was measured using the WHO-5 Well-being Index. This scale is a self-assessment instrument consisting of five multiple choice questions designed to measure the level of psychological well-being. It was developed for the WHO Collaboration Centre for Mental Health, and is a useful tool for assessment psychological well-being status among older persons subjects. A higher score indicates a higher level of psychological well-being (Bech, *et al.*, 2006). This scale has received sufficient reliability and validity among older Malaysians. More details of the psychometric properties of the scale have been recently published elsewhere (Momtaz, *et al.*, 2010). Social support was measured using Duke Social Support and Stress Scale (DUSOCS). It indicates how much each person or a group of person is supportive in their life at the time of the study. Previous study among older Malaysian showed sufficient reliability and validity (Momtaz, *et al.*, 2009).

Table 1
Socio-demography Characteristics of the Respondents (N= 716)

<i>Variables</i>	<i>N (716)</i>	<i>%</i>	<i>M</i>	<i>SD</i>
Age (year)				
Young-Old (60–74)	522	72.9		
Old-old (75–84)	160	22.3		
Oldest-old (85+)	34	4.7		
Stratum				
Rural	441	61.6		
Urban	251	35.1		
Marital Status				
Never married	7	1.0		
Divorced/separated	20	2.8		
Widowed	486	67.9		
Currently Married	203	28.4		
Number of children			5.0	2.66
Formal Education				
No	368	51.4		
Yes	348	48.6		
Work Status				
Working	79	11.0		
Not working	636	88.8		
Income				
< 691	294	41.1		
RM 692–1500	234	32.7		
> RM 1500	188	26.3		
Home ownership				
Own	648	90.5		
Stay without payment	26	3.6		
Rent	29	4.1		
Others	12	1.7		

Socio Economic Background

Results of the study showed that more than half of the respondents (61.6%) stayed in rural areas and 35.1 per cent in urban areas. In terms of age, about three quarter of the respondents (72.9%) were young old (60 to 74 years old), 22.3 per cent were old-old (75 to 84 years old) and 4.7 per cent were oldest old (more 85 years old). More than two third (67.9%) were widowed, 28.4 per cent were married and 3.8 per cent were never married/divorced/separated. Their average number of children was 5 persons. In terms of educational status, 51.4 per cent were without any formal education and 48.6 per cent have attended schools. Majority of the respondents (88.8%) were not working. In terms of household income, 41.1 per cent of the respondents were fall under poverty line (less RM 691) followed by 32.7 per cent with low income (RM 692 to RM 1499) and 26.3 per cent with income more than RM 1500. In terms of house ownership majority of them (90.5%) were home owners, followed by 4.1 per cent renters and 3.6 per cent stayed in the current house without any payment.

Table 2
Distribution of Perceived Social Support Received from Different Individuals

<i>Person who Give Support</i>	<i>None</i>		<i>Some</i>		<i>A lot</i>		<i>There is No Such Person</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Spouse	17	2.4	17	2.1	177	24.7	507	70.8
Children/grandchildren	7	1.0	63	8.8	629	87.8	17	2.4
Parents/grand	17	2.4	17	2.4	20	2.8	655	91.5
Brothers/sisters	109	15.2	292	40.8	197	27.5	118	16.5
Other blood relatives	146	20.4	353	49.3	186	26.0	28	3.9
Relatives by marriage	172	24.0	326	45.5	165	23.0	52	7.3
Neighbors	56	7.8	255	35.6	401	56.0	4	0.6
Co-workers	66	9.2	46	6.4	12	1.7	591	82.5
Worship members	99	13.8	302	42.2	281	39.2	34	4.7
Other friends	109	15.2	337	47.1	234	32.7	36	5.0

Table 2 shows distribution of perceived social support received by older persons from different individuals. Most of the respondents received a lot of their social support from their children and grandchildren (87.8%), followed by neighbors (56%) and worship members (39.2%). Among the Muslims, children are expected to support and take care of their elderly parents. However, some of their children have moved out of the house to find employment in the city, getting married and live else where. In this case, neighbors played important role in supporting the older persons living in the community. It is also a normal practice for the older persons to be actively involved in social and religious activities in the community and thus help to harness their social support to other community members. These older persons received some support from their brothers and sisters (40.8%), other blood relatives (49.3%), relatives by marriage (45.5%), worship members (42.2%) and other friends (47.1%). Most of them did not receive any social support from their relatives by marriage (24%) and other blood relatives (20.4%). It shows that in-laws and distance family members do not play in important role in terms of social support for these older persons.

Table 3 shows distributions of five statements of WHO wellbeing index which reflect psychological well-being among these older women. For the statement "I have felt cheerful and in good spirits," more than one third (34.2%) answered "most of the time" and 20.9% mentioned "all of the time". It indicated more than half of the women were cheerful and in good spirit most of the time. A high percentage of them "felt calm and relax" where 37.4 per cent said most of the time and 25.7 per cent all of the time. However, more than one-fourth (27.9%) 'felt active and vigorous' less than half of the time followed by 24.6 per cent who felt active most of the time. This statement indicates that more than half of the respondents did not feel active and vigorous. It could be related to their deteriorating physical status as compared to when they were young. Regarding the statement "I woke up feeling fresh and rested", about one third (34.1%) responded most of the time. Overall, more than 60 per cent respondent half of the time and above. It indicates that more than half of them felt fresh and rested after a good sleep at night. The last statement "my daily life has been filled

Table 3
Distribution of Psychological Well-being

<i>Over the Last Two Weeks</i>	<i>At No Time</i>		<i>Some of the Time</i>		<i>Less than Half of the Time</i>		<i>More than Half of the Time</i>		<i>Most of the Time</i>		<i>All of the Time</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
I have felt cheerful and in good spirits	8	1.1	100	14.0	139	19.4	74	10.3	245	34.2	150	20.9
I have felt calm and relaxed	6	0.8	67	9.4	114	15.9	77	10.8	268	37.4	184	25.7
I have felt active and vigorous	27	3.8	164	22.9	200	27.9	63	8.8	176	24.6	86	12.0
I woke up feeling fresh and rested	6	0.8	134	18.7	143	20.0	68	9.5	244	34.1	121	16.9
My daily life has been filled with things that interest me	81	11.3	226	31.6	133	18.6	66	9.2	139	19.4	71	9.9

with things that interest me” received the lowest score where the largest number (31.6%) responded “some of the time” followed by 19.4 per cent most of the time. This indicates that their daily life could be boring and not many meaningful activities are carried out during the day. Thus, they need to plan and get involve in activities of their interest in the family or community that could make their life more cheerful and meaningful.

Table 4
Intercorrelation between Socioeconomic Status, Social Support and Psychological Well-being

Variable (N=716)	1	2	3	4	5	6	7	8
1. Psychological Well-being	-	0.214**	0.263**	-0.228**	0.110**	0.018	0.062	0.038
2. Family Support		-	0.323**	-0.178**	0.101**	0.043	0.098**	0.144**
3. Non-Family Support			-	-0.028	0.002	0.056	0.088*	0.053
4. Age				-	-0.273**	-0.019	-0.026	-0.119**
5. Formal Education					-	-0.027	0.146**	-0.059
6. Household members						-	0.359**	0.043
7. Household income							-	0.112**
8. Number of children								-
*p<0.05 **p<0.01								

Correlation tests were conducted to examine relationships between pertinent variables in this study. Table 4 shows significant relationships between psychological well-being and non-family support ($r = 0.26$, $p < 0.01$), family support ($r = 0.21$, $p < 0.01$), age ($r = -0.23$, $p < 0.01$) and formal education ($r = 0.11$, $p < 0.01$). It indicates that psychological well-being is higher among those who received non-family and family supports and those with higher level of education. However, psychological well-being declined as age increased.

Table 5
Summary of Regression Analysis for Variables Predicting Psychological Well-being among Muslim Older Women

<i>Variable</i>	<i>B</i>	<i>SE</i>	<i>β</i>
(constant)	87.947	9.010	
Family Support	0.124	0.044	0.11*
Non-Family Support	0.232	0.039	0.221**
Age	-0.636	0.113	-0.213**
Formal Education	-1.566	1.680	-0.035
Household income	0.000	0.001	0.033
Number of Son	0.039	0.461	0.003
Number of daughter	-0.371	0.473	-0.028

[F=15.067, df=7, p=0.000], Note: R² = 0.13 *p<0.05

Regression analysis (Table 4) showed an R² of 0.13 that revealed the ability of the regression model to explain the variation in the dependent variable (psychological well-being) by 13 per cent. The model was significant at p=0.05 with F-value of 15.067. Amongst the independent variables entered in the model, four variables were significant and these were non-family support, family support, formal education and age. The importance of the predictor variables was assessed using beta weight. Among the four predictors, non-family support (β=0.22) was the most important in influencing the variance in psychological well-being. The regression model for the enter method was as below:

Y (Psychological well-being) = 87.947 + 0.104 (family support) + 0.223 (non family support) - 0.21 (age) with adjusted R² = 0.13 and F-value = 15.06

All predictors were positively related to psychological well-being where the higher non-family support and family supports, the higher their psychological well-being they were. However, psychological well-being decreased as they age.

Conclusion

The results of this study reveal that social support especially from non family support source is a significant predictor of psychological well-being among older Muslim women. It is a common practice in Malay Muslim households to have a good relationship with their neighbors living in the community. Activities that are commonly carrying out together in the community are helping each other in their every life, attending religious classes in the mosque and attending feast and weddings. Normally their adult children would move out from the house to the city to further their studies, getting a job and getting married. Thus, older person would have to be dependent on their neighbors in time of needs and emergency. Supports from their children took second place as most of them they live elsewhere. The result also showed that psychological well-being decreased as they getting older could be influenced by various reasons such as deterioration of health, restriction in movement and inability to continue socialize in the community as compared when they were younger. Since older person were depending on their non-family and family supports for their psychological well-being, those persons involved should play more active roles in providing the support to these older persons. It should be emphasized that those in the oldest old category would need more supports and care from these support groups.

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Developing Vulnerability Scale For The Elderly

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ABSTRACT

Elderly are increasingly becoming vulnerable in the contemporary world for various biopsychosocial factors. This vulnerability is multi-dimensional with varied implications. The paper attempts to develop a comprehensive Scale to measure vulnerability among the elderly based on the Guttman's Scalogram technique attributing differential weightage values to the items or variables. The overall vulnerability is a composite variable of health vulnerability, social vulnerability and economic vulnerability. The relevance of such an appraisal system is discussed in the paper.

Key Word: Vulnerability, Vulnerability Scale, Status of elderly Social security needs, Bio-psycho-social Dimension of Vulnerability

Elderly, in the contemporary world are standing at the cross-roads. The elderly, who have once played a pivotal role in the societal growth and development, are more and more perceived as vulnerable, dependent and spent-force. They are increasingly losing their traditional ascribed status, respect and authority in the family and society. There are many reasons for this change; salient ones may well be delineated.

Demographically, the number and proportion of the elderly to the general population are increasing, which, according to some policy makers and social scientists, is putting pressure on the scarce resources of developing countries for meeting their social security needs. For instance, in India, in 1951, the elderly population was 5.4 per cent to the general population and dependency ratio was 9.8, while in 2001, elderly population rose to 7.7 per cent and dependency ratio increased to 13 (Census, 2001; Sharma, 1994).

Added to this, deterioration in the functioning of the body organs make elderly persons more susceptible to ailments. Capacity of sensory organs is reduced and collective effect of these changes is visible on their increased dependence on others for activities of daily living. Further, for most, old age brings economic dependence accentuating their vulnerability. Before reviewing the biopsychosocial dimensions of vulnerability of the elderly, understanding the concept and meaning of vulnerability would be beneficial.

Vulnerability, in its simplest denotative sense, means the capacity to be harmed. It is the potential for negative outcomes or consequences. However, although most scholars agree on this broad definition, the use of the term varies depending upon the discipline and research issue. Cutter (1996) identifies three distinct clusters of definitions for vulnerability: as risk of exposure to hazards, as a capability for social response (what we call coping or adaptive capacity), and as an attribute of places (e.g., vulnerability of coastlines to sea level rise).

Vulnerability is defined as the increased probability of occurrences of events leading to harmful consequences, or expected loss of lives, people injured, property, livelihoods, economic activity disrupted (or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable conditions.

Vulnerability refers to risk of being in problems/difficulties on occurrence of certain contingent conditions that require support system other than those available. These contingency situations could be poor health, stringent economic condition, lack of sufficient means to handle crisis and limited social support system. For instance, certain conditions that increase vulnerability of elderly women could be—lack of sufficient means of livelihood, no ownership

of movable-immovable assets, no/unwilling family members or other relatives to provide support, widowhood, abuse by family members, illiteracy, poor health condition, dependence in activities of daily living, reduction in sensory capabilities and the like. This apart, patriarchal social structure has led to collective prejudices against women's equality and empowerment.

Statistics show that, out of nearly eight per cent of elderly population to the general population in the country, one-third is below poverty line and one-third just above it (NSSO, 1997). So, about two-thirds of the aged citizens are vulnerable and are in need of social safety net. In order to reduce the vulnerability of the aged population, the State and civil society organizations have initiated many services and programmes like geriatric wards and clinics, mobile vans, health camps, day care centres, old age homes, and so on. However, under its social assistance programme, two schemes by government of India need special mention—Old Age Pension (OAP) and Annapurna scheme meant for the destitute and needy elderly. However, availing these benefits is subjected to fulfillment of stringent conditions of age verification, domicile and proof of destitution. Many gerontologists have questioned the efficacy of the said appraisal system as criteria for disbursement of materials and services under social assistance programmes. Added to this, researches have shown poor impact and reach of these services in reducing the vulnerability levels of destitute and needy elderly (Khan, 1997; Shah, 2004; Khan, *et al.*, 2006).

Having said this, it may be noted that the elderly is not a homogenous community. The dimensions and levels of vulnerability vary within the aged population. Senior citizens differ in terms of vulnerability based on their age, sex, socio-economic status, locale, climatic conditions, also due to differential bearing of the years of life they had led. So, we may come across 'healthy and active' octogenarians and may also find frail and dependent elderly in their early sixties. Likewise, in urban areas, senior citizens living alone and belonging to upper middle class and rich strata are particularly vulnerable to crime against them while their counterparts near or below poverty line may find it difficult to keep their body and soul together. Therefore, we observe the varied dimensions and intensities of vulnerability among the aged. For gerontologists as well as policy makers, it becomes

important to address the differential needs and requirements of elderly citizens based on objective, scientific and systematic guidelines of measuring levels of vulnerability.

Social work research forms an important method of social work practice, which provides scientific unbiased data of the field situation. The information, thus gathered, helps in developing and strengthening intervention or change effort. From this viewpoint, the present paper attempts to develop a vulnerability scale for assessing the risk factors among the elderly. When updated and standardized, the scale would be an effective tool to measure the levels of vulnerability of the aged citizens in the country. This may also be helpful in providing resources and services under the social safety net based on the ranking of elderly people on the Scale.

Various manifestations of vulnerability vis-à-vis elderly could be:

- Advancing age itself can become a factor in enhancing vulnerability if it is accompanied by associated factors that force a person to change his/her preferred life-style and autonomy.
- Inadequate food intake due to poverty, lack of resources, abuse by caregiver(s), requirement of special diet and non-availability of same, lack of knowledge about the balanced diet, make an elderly person vulnerable to many deficiency disorders. In old age, deterioration in body strength is accelerated due to nutritional deficiencies. This factor of nutritional vulnerability leads to poor health condition, which, in turn, may hamper the aged person's well-being in several ways.
- Poor health condition, ailments like high/low blood pressure, diabetes, digestive upsets, breathing problems, and decreasing sensory capabilities, say, vision, hearing, often make the aged persons vulnerable as these factors limit their autonomy in activities of daily living.
- Accessibility and affordability to healthcare services often influence health vulnerability of the aged.
- In the case of women, other than general old age related health problems, gynaecological ailments and susceptibility to osteoporosis after menopause add to the vulnerability especially for those

who had repeated and multiple pregnancies in their prime time accompanied with poor nutritional intake.

- Widowhood in a patriarchal social structure does aggravate a woman's vulnerability as her identity, more or less, is governed by her husband. Societal perception becomes harsh towards her when she is without the 'support' of her husband.
- Superannuation from work life adds to economic vulnerability, more so in the case of those not getting any pension and other retirement benefits.
- Savings and possession of assets may serve as security in old age. However, women, more often than not, are denied property rights. Also, lack of knowledge of intelligent appropriation of economic resources or due expenses on carrier and marriage of child(ren) added to economic vulnerability.
- Patriarchal social structure has discouraged a woman to actively participate in community events and join formal social groups. As a result, majority of women have remained dependent on their family members for support and even lack of information about these resources.
- All factors that contribute to mental health problems like worry and tension, depression; loneliness, etc., tend to enhance vulnerability of aged persons.
- Elderly abuse, be it physical, social, emotional, verbal, mental, at the familial and/or community level, increases vulnerability.
- From system's perspective, problems in availing support of informal resource system (family, friends, neighbourhood), formal resource system (NGOs, Self Help Groups, Elderly Clubs) and societal resource system (State, workplace, legal system, welfare department, etc.) would add to the vulnerability of the elderly person. The problems in availing these resource systems can be lack of awareness, skills, and confidence on the part of the aged and reluctance/inability on the part of the system to offer support.

In this context, the present paper attempts to develop a vulnerability scale for the elderly. Ranking on the scale would provide an insight into the intensity of vulnerability of the aged persons. The

present work sets out with the objective to develop a dependable and comprehensive scale to measure the phenomenon of vulnerability among the elderly, with a view to facilitating the provisions of adequate and suitable programmes, schemes and services for the elderly persons in India.

Vulnerability is taken as a condition or state of some persons or groups who somehow carry a larger probability of being harmed by economic, environmental or health or social problems, than the rest of the population. For the purpose of the present study, vulnerability may be defined as those contingent conditions that hamper the well-being (social functioning) of elderly persons and requires the support system other than the existing ones to mitigate the factors that may result in helplessness and hopelessness, if not encountered promptly.

Needless to mention, *forms of vulnerability* are many, and vary in different cultural settings. The present study, however, focuses on the following five prominent forms of vulnerability of elderly persons:

- *Nutritional vulnerability*: It is the vulnerability arising out of non-availability/denial of balanced nutrition required by elderly persons, thereby hampering their health.
- *Health vulnerability*: Vulnerability because of decreasing sensory capability, body strength, ailments like high/low blood pressure, diabetes, digestive upsets, breathing problems, etc., that hamper an aged person's autonomy in activities of daily living.
- *Economic vulnerability*: This vulnerability is manifested due to lack of sufficient means of livelihood and other support systems that result in holding up of necessary expenditures and leads to economic insecurity.
- *Social vulnerability*: It is vulnerability resulting in changes in the social status at family and community levels manifested through abuse (physical, mental, verbal, etc.), and lack of or denial of opportunities of performing meaningful roles in the family like in decision-making, sharing household responsibility and reduced opportunities of meaningful interactions and congruent relationships with significant others.

- *Overall vulnerability:* Overall vulnerability is a composite variable of the above four variables (nutritional vulnerability + health vulnerability + economic vulnerability + social vulnerability).

Vulnerability among the elderly is a complex phenomenon that results due to interplay of various causative, precipitating and contingent factors and is manifested in numerous ways. Equally complex is to measure the extent and intensity of vulnerability. Towards this, a few observable and dependable items, have been identified and used in the construction of the Scale. Let us take a close look:

Dimensions of Vulnerability Scale

Using the scalogram technique by Guttman, the responses given by the respondents on a probe statement are assigned different weightage and then summated rating gives the ranks to responses of the composite variable. In the scale, three domains of vulnerability—health vulnerability, social vulnerability and economic vulnerability—are taken into account. Each domain is a composite variable, details of which are described subsequently. Overall vulnerability would be the composite or summation of all these dimensions of vulnerability. Let us first look at the health vulnerability.

Health Vulnerability

Old age brings deteriorative changes in the body, though individual variations in terms of the rate and intensity do exist. A person becomes susceptible to ailments like diabetes, high/low blood pressure, arthritis, spondalities, respiratory and digestive discomforts and so on. Capacity of sensory organs, eyesight, hearing, etc., reduces. All these factors have repercussions on the social interaction and autonomy of the aged person. In the study, a composite variable 'Health Vulnerability' is developed, which is comprised of (a) ADL vulnerability, (b) Sensory vulnerability, (c) Physical vulnerability, (d) disability, (e) Nutritional vulnerability, and (f) Mental health vulnerability. Details are as follows:

(a) ADL Vulnerability

'Activities of Daily Life' (ADL) form an important component of health and well-being of the elderly. In old age, there is reduction in autonomy in ADL. It not only psychologically puts the elderly down (see Erickson's Stages of Life) but also negatively influences their social interactions. Dependence on others for ADL increases chances of abuse and exploitation (Panda, 2005). There seems to be direct relationship between dependence on ADL and vulnerability. In the Scale, following items on ADL have been included.

Q (i) Can you do 'eating'?

(Weightage)

1 At your own	1
2 Require help	2
9 NA/DK/NR	1

Other items asked under ADL to look into level of autonomy on similar lines are: (ii) Can you do 'bathing'; (iii) walking; (iv) getting up; (v) kitchen work; (vi) taking medicine; and (vii) washing?

The values of these seven items are summated, and a new composite variable is generated. Its theoretical score is between 7 and 14. The range is divided into three categories—low, medium and high, taking the nearest value of 33rd and 67th percentile as cut off points using the cumulative frequency.

(b) 'Sensory' Vulnerability

Old age brings deterioration in sensory capabilities that may pose hurdles in every-day functioning and thereby increases the vulnerability of the people. In the Scale, following items have been included under this sub-set.

Q (i) During last three years, what has been the position of Vision?

(Weightage)

1 Unchanged	1
2 Gone down	2
9 NA/DK/NR	1

Other items on similar lines are: (ii) During last three years, what has been the position of Bones/joints; (iii) Hearing; and (iv) Psychomotor/trembling?

The values of above above-mentioned four items are indexed, to have scores, and a new composite variable is generated. Its theoretical score ranges between 4 and 12. Utilizing these scores, yet another variable, with grouped scores—sensory vulnerability—is computed having three categories: low, medium and high, based on 33rd and 67th percentiles as cut off.

(c) Physical Vulnerability

In old age, due to reduced functioning of the body organs and systems, many ailments like hypertension, diabetes, etc., crop up in the body. This adds to vulnerability of the aged people. In the Scale, following items on physical vulnerability are included:

Q (i) During last one year, have you had high/low Blood pressure?

(Weightage)

1 Yes	2
2 No	1
9 NA/DK/NR	1

Other items are: (ii) During last one year, have you had heart problem; (iii) gynecological problem (to be asked from females only); (iv) sugar/diabetes; (v) digestive upsets; (vi) respiratory problems/coughing; (vii) stones; and (viii) jaundice?

The values of these eight items are summated, and a new composite variable is generated. Its theoretical score is between 8 to 16. After summation, new variable named 'Physical Vulnerability' is computed. It has three categories: low, medium and high, with cut off being 33rd and 67th percentiles.

(d) Disability

Disability indeed adds to the vulnerability in old age and older people are more prone to varied handicaps. Following items are included in this category:

Q (i) Is the elderly person suffering from visual disability?

(Weightage)

1 Yes	2
2 No	1
9 NA/DK/NR	1

Other items under this composite variable are: (ii) Is the elderly person suffering from hearing disability; (iii) speech disability; and (iv) locomotion disability?

The values of these four items are summated, and a new composite variable—disability is generated. Its theoretical range is between 4 to 12, which is divided at 33rd and 67th percentile into three categories—low, medium and high.

(f) Nutritional Vulnerability

Many factors like deterioration in digestive capacities, restricted dietary intake due to ailments like diabetes, hypertension, reduced purchasing power, problems in getting balanced and need-based dietary intake often lead to nutritional vulnerability among the elderly. It may be noted that nutrition is equally important for the aged as in the case of other age-groups to maintain health. The component Nutritional Vulnerability comprises of following items:

Q (i) Did you have cereals (chapatti/rice, etc.) in your meals yesterday?

(Weightage)

1 Did not have	2
2 Had adequately	1
3 Somewhat inadequate	2
4 Inadequate	3

Other items under Nutritional Vulnerability are: (ii) Did you have pulses; (iii) eggs/poultry/meat; (iv) milk/milk products; (v) green vegetables/salads; and (vi) fruits in your meals yesterday?

Weighted in the values above-mentioned six items are summated, adopting the Scalogram (Guttman) Technique. A fresh composite variable is generated named 'Nutritional Vulnerability'. It has theoretical scores 6 to 18. It has three categories: low, medium and high, with 33rd and 67th percentiles as cut off points.

(g) Mental Health Vulnerability

Mental health problems like anxiety and depression are quite common especially among the elderly. Lack of awareness, associated stigma and discrimination compound the vulnerability of the aged having mental health complaints. This composite variable has following items:

Q (i) During last one year, have you had anxiety and tension?

(Weightage)

1 Yes	2
2 No	1
9 NA/DK/NR	1

Other items under this composite variable are (ii) During last one year, have you had sleeplessness/insomnia; (iii) mental pressure/depression?

Adhering to the scaling technique, the values of these three items were summated, and a new composite variable has been developed. Its theoretical score is between 3 and 6. These scores are categorized and a new variable—Mental Health Vulnerability, into three groups: low, medium and high, with cut off being 33rd and 67th percentile.

Health (overall) Vulnerability

Let us restate: Health vulnerability is assumed to have six components:

(a) ADL vulnerability	(Weightage)
1 Low	1
2 Medium	2
3 High	3
(b) 'Sensory' vulnerability	(Weightage)
1 Low	1
2 Medium	2
3 High	3
(c) Physical vulnerability	(Weightage)
1 Low	1

2 Medium	2
3 High	3
(d) Disability	(Weightage)
1 Low	1
2 Medium	2
3 High	3
(e) Nutritional vulnerability	(Weightage)
1 Low	1
2 Medium	2
3 High	3
(f) Mental health vulnerability	(Weightage)
1 Low	1
2 Medium	2
3 High	3

The weighted values of these six items were summated, and new composite variable health (overall) vulnerability has been generated. Its theoretical score is between 6 and 18. Next, these scores are grouped and a new variable—Health (Overall) Vulnerability is computed. It is again divided into three categories: low, medium, and high.

Social Vulnerability

Social institutions like family and neighbourhood generally fulfill the basic needs like love and belongingness. Formal and informal acceptance of significant others is crucial for the self-concept and well-being (Panda, 2005). When the elderly fail to get the sense of acceptance from their social environment, they become socially vulnerable. Though a complex concept, social vulnerability is taken to be indicated by (a) familial decision-making; (b) Participation in household activities; (c) elderly abuse; (d) susceptibility to crime; and (e) Interviewer/researcher's observations. Particulars of these sub components are as follows—

(a) Familial decision-making

Involvement of the elderly in day-to-day decisions of the family is an important indicator of their social acceptance and exclusion from the decision-making process, then, indicates vulnerability. Following items are included to study this aspect of social vulnerability.

Q (i) Does your family (those who live with you) consult you while giving gifts/presents to relatives and family friends:

(Weightage)

1 Yes	1
2 No	3
9 NA/DK/NR	2

Other items are: (ii) Does your family (those who live with you) consult you in buying of household assets like refrigerator, T.V., etc.; (iii) the sale or purchase of property like house/car/scooter; (iv) preparation of daily food items; and (v) the matters related to marriage of grand-children.

The values of these five items were summated, and a new composite variable was generated. Its theoretical score is between 5 and 15. In turn, these scores are grouped and a new variable has been computed. It has three groups: low, medium and high.

(b) Participation in Household Activities

Involvement in some kind of fruitful and satisfying activities is very important for the social acceptance of the aged. However, when this involvement is forceful, it depicts abuse. Following items indicate vulnerability of the aged in this regard:

Please tell us the activities you generally do at home:

Q. (i) Preparing tea or coffee:

(Weightage)

1 No	2
2 Yes, may choice	1
3 Yes, forced upon me	3
9 NA/DK/NR	2

Other items are: (ii) Cutting of vegetables, salads, etc.; (iii) arranging things in proper place; (iv) cleaning food grains/harvesting, etc.; (v) mending clothes; (vi) preparing meals; (vii) cleaning utensils; (viii) cleaning/sweeping the floor; (ix) washing clothes/laundry; (x) taking care of grandchildren; (xi) depositing telephone, electricity bills; (xii) buying and bringing grocery, vegetables and other household items from the market; (xiii) dropping and receiving grandchildren from school/bus stand; and (xiv) involvement in income-generation.

Next, the values of these fourteen items are summated, and a new composite variable is developed. Its theoretical score is between 14 and 42. It has three groups: low, medium and high, using two cut off points at 33rd and 67th percentiles of cumulative frequency.

(c) Elderly Abuse

Abuse is the direct evidence of social vulnerability of the elderly. Though it is difficult to capture, an attempt is made to record it through following items:

Q. (i) Do any of the family members rudely behave with you?

(Weightage)

1 Yes	2
2 No	1
9 NA/DK/NR	1

Q. (ii) During last one year, has any member of the household done any of the following? (multiple choice)

(Weightage)

1 Ignored or neglected you	2
2 Denied food, clothing or medical care	2
3 Used abusive language with you	3
4 Slapped, beat or thrashed you	3
5 Thrown you out of the house	3
9 NA/DK/NR	1

The values of the above-noted two items are summated, and a new composite variable is generated. Its theoretical score is between 2 and 13, which is grouped and a new variable is computed. It has three groups: low, medium and high, based on the 33rd and 67th percentile as cut off points.

(d) Susceptibility to Crime

Elderly are increasingly becoming susceptible to crime, especially in the urban setting. Following two items record this aspect of social vulnerability:

Q. (i) At present, are you living:

	(Weightage)
1 all alone	3
2 only with spouse	2
3 with child(ren)	1
9 NA/DK/NR	1

Q. (ii) Do you have any fear of being victimized due to criminal conspiracy?

	(Weightage)
1 No, never	1
2 Yes, always	3
3 Yes, sometimes	2
9 NA/DK/NR	1

The values of the above-noted two items are summated, and a new composite variable is generated. Its theoretical score is between 2 and 6. It has three groups: low, medium and high, based on 33rd and 67th percentile.

(e) Interviewer/Researcher's Observations

Structured observation is one of the best methods of noting the social vulnerability of the elderly in an authentic way. Following two items are included:

(i). Living/sleeping arrangements—

	(Weightage)
1 Exclusive	1
2 Shared	2
3 Barsati	3
9 NA/DK/NR	2

(ii). Posture of family members towards Respondent—

	(Weightage)
1 Affectionate	1
2 Indifferent	2
3 Disdainful	3
9 NA/DK/NR	2

The values of the above two items are summated, and a new composite variable is generated. Its theoretical score is between 2 and 6, which is divided into three categories: low, medium and high based on the 33rd and 67th percentile.

Social (overall) Vulnerability

It may be restated that 'social vulnerability' comprises of five components:

(a) Familial decision-making	(Weightage)
1 Low	1
2 Medium	2
3 High	3
(b) Participation in household activities	(Weightage)
1 Low	1
2 Medium	2
3 High	3
(c) Elderly abuse	(Weightage)
1 Low	1
2 Medium	2

	3 High	3
(d) Susceptibility to crime		(Weightage)
	1 Low	1
	2 Medium	2
	3 High	3
(e) Interviewer/researcher observation		(Weightage)
	1 Low	1
	2 Medium	2
	3 High	3

The weighted values of these five items are summated and a new composite variable is generated. Its theoretical scores are between 5 and 15 that are divided into three groups: low, medium, and high, based on the 33rd and 67th percentile.

Economic Vulnerability

Many conditions accentuate economic vulnerability of the elderly. Nearly 93 per cent of the population in India is in the unorganized sector. Elderly population in unorganized sector, more often than not, has to rely on its physical strength while old age is characterized by deterioration in body's energy and stamina. Most of the elderly persons remain out of the coverage of social insurance services.

While developing the vulnerability scale, it was realized that seeking responses on indicators like monthly income of the respondents or ownership of movable, immovable assets to assess their economic condition was a difficult proposition. Pre-testing has shown that, because of high degree of variance, getting reliable information on these issues is a knotty affair. Therefore, assessing the level of economic security of the aged persons is a workable option (also see: Panda, 2005). Therefore, economic security, [defined as the feeling of assurance aged persons have that, irrespective of their economic dependence-independence, their kith and kin would take care of their needs and wants] is assessed with following variables:

Q.1 Are there any items of expenditure (treatment/surgery of any ailment, child's marriage, teerth yatra, ham, etc.), which are held up for want of money?

	(Weightage)
1 Yes	2
2 No	1
9 NA/DK/NR	1

Other items are: (ii) can you easily spend money for buying such items of necessity as clothes, eatables, etc.; (iii) are you able to spend money on making 'daan' or donations to temple, church or other religious institutions as per your wishes; (iv) If ever you need some expensive medical treatment for yourself, do you think you can arrange money for it; (v) Do your family members willingly meet your routine expenses; and (vi) (to be asked from the caregiver) Are the expenses on your elderly relative a burden on the family budget?

Following the Scalogram (Guttman) Technique, the values of above-mentioned six items are summated to have scores and a new composite variable is generated. It has theoretical score, which ranges from 6 and 12. Utilizing these scores, yet another variable—economic vulnerability—with grouped scores, is computed. It has three categories: low, medium and high, based on 33rd and 67th percentiles.

Overall Vulnerability

In order to measure overall vulnerability, a composite variable, combining health vulnerability, social vulnerability and economic vulnerability and taking code categories as weights has been developed. The new variable has theoretical range from 3 to 9. The observed score has been divided into three groups—low, medium and high.

As vulnerability and its components show a good deal of consistency and contextual validity, it could be easily interface with the policies and programmes evolved for improving the situation of elderly in different segments and in different states.

Conclusions

In the National Policy for Older Persons (1999), the government of India commits itself to ensure and protect the well-being of the senior citizens of India. The National policy, seeks to assure older persons that their concerns are national concerns and they will not live unprotected, ignored or marginalized. The goal of the National Policy is the well-being of older persons. It aims to strengthen their legitimate place in society and help older persons to live their last phase of their life with purpose, dignity and peace.

The Indian State, thus, is obligatory to reduce the vulnerability of the needy and destitute aged. However, in the contemporary society, we cannot have a myopic view of vulnerability confined to poor economic condition. Even the affluent senior citizens too have vulnerability, though of a different nature. Having said this, we must note that the elderly is not a homogeneous community, and nor do their vulnerability. Likewise, health issues may not be so significant for the young but for the aged they do. It is estimated that every year around three per cent of the population is pushed below poverty line on account of expenditure on health issues (Kaushik and Yusuf, 2007). In the case of elderly, the expenditure on health goes almost eight times up in proportion to the young population (Getzen, 1992). Added to this, social aspects of vulnerability are equally significant. Incongruent relationships with significant others may put the elderly into the state of destitution (Panda, 2005).

The elderly are a population group with its differential needs and problems. This calls for a comprehensive view of vulnerability with its health, social and economic dimensions. The Scale delineated above is an attempt to develop a holistic system to appraise the vulnerability of the aged. It may facilitate the service providers like government and civil society organizations to offer need based, tailor made programmes and services to the elderly in order to reduce their vulnerability and ensure well-being. This may also facilitate convergence of services, thereby expanding its reach and impact.

The Vulnerability Scale needs to be tested in various settings and socio-cultural milieu. Certain dimensions that may be added to the

Scale are differential impact of rural-urban setting on vulnerability of elderly, examining economic condition, assessing availability, accessibility and affordability of social support system including health care services.

There is much scope to undertake research programme to suggest ways and means to make the Vulnerability Scale comprehensive and to standardize the same for effective appraisal system. This small academic exercise may pave way to holistic need assessment and tailor-made interventions for the well-being and rights of the senior citizens. This may also offer an insight into the development of an appraisal system with an empowerment perspective.

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Theorizing Social Gerontology amidst Multidisciplinary Concerns: An Overview of Contesting Connotation and Counter Claims

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ABSTRACT

Gerontology is a complex puzzle requiring not only the actionable solution but also meaningful explanation. The problems of age and ageing for quite some time during the last quarter of twentieth century appeared increasingly dismissive of the importance of theory and came essentially under the domain of empirical research and practical action. Accordingly the knowledge over the subject grew and such knowledge within the broad ambit of multidisciplinary concerns became data-rich and theory-poor. The development of theoretical explanations is a huge challenge now central to the variety of issues that gerontologists are going to address. This paper takes up such challenge and is concerned with an extensive review of literature on the major theoretical ideas which have informed social understanding of age and ageing in the new millennium. It is important to illuminate the contrasting theories of age and ageing, as research papers in mainstream social gerontology have to grip and grind these theories in an attempt to understand the epistemological and ontological dimensions of human experience for further research. Accordingly, this paper addresses the following issues. (1) locating the age of ageing, (2) the growth and scope of social gerontology (3) The stakes and strengths of theorizing social gerontology, (4) social gerontology amidst

multidisciplinary concerns. Finally, the paper looks back and winds it up with an overview of the discussion.

Key Words: Gerontology, Theories on Ageing, Multidisciplinary Concerns

The predominant prejudice continued to be that ageing as such was a problem and needed to be addressed. Accordingly the knowledge over the subject grew and such knowledge within the broad ambit of multidisciplinary concerns became data-rich and theory-poor. Perhaps nowhere is this more visible than in the growth of cross-disciplinary studies concerning the mechanism of aging. Beyond data-rich gerontology something is to be given to those who will be leading the course of knowledge construction in days ahead. Gerontology, until the end of last century, appeared increasingly dismissive of the importance of theory. With such thing happening, current gerontological research may be accumulating a vast collection of empirical generalizations without the parallel development of integrated explanatory mechanism. Gerontology is a complex puzzle requiring not only the actionable solution but also meaningful explanation. The problems of age and ageing for quite some time during the last quarter of twentieth century came essentially under the domain of empirical research and practical action.

The development of theoretical explanations is a huge challenge now central to the variety of issues that gerontologists are going to address. There are, hence, attempts to explain, going beyond descriptive data to propose mechanisms and processes underlying them. This paper takes up such challenge and is concerned with an extensive review of literature on the major theoretical ideas which have informed social understanding of age and ageing in the new millennium. It is important to illuminate the contrasting theories of age and aging, as research papers in mainstream social gerontology have to grip and grind these theories in an attempt to understand the epistemological and ontological dimensions of human experience for further research. Accordingly, this paper addresses the following issues. (1) locating the age of ageing, (2) the growth and scope of social gerontology (3) The stakes and strengths of theorizing social gerontology, (4) social gerontology amidst multidisciplinary concerns.

Finally, the paper looks back and winds it up with an overview of the discussion.

The Age of Ageing

Age of a human refers to the stretch of time between the birth and death. It is a period of human life, measured by years from birth, usually marked by a certain stage or degree of mental or physical development and involving social responsibility and personal capacity. Old age consists of ages nearing or surpassing the average life span of human beings, and thus understood as the beginning of the end phase of the life cycle. Other terms for old people include aged, senior citizens, oldies and the elderly. Talarsky, Laura (1998) says "Elders are socially 'othered' through processes of medicalization and categorization as an "at risk" group. Furthermore, elders are culturally constructed as unproductive and over consumptive collective resources".

Although there are commonly used definitions of old age, there is no general agreement on the age at which a person becomes old. The common use of a calendar age to mark the threshold of old age assumes equivalence with biological age, yet these two are not necessarily synonymous. "The ageing process is of course a biological reality which has its own dynamic, largely beyond human control. However, it is also subject to the constructions by which each society makes sense of old age. In the developed world, chronological time plays a paramount role. The age of 60 or 65, roughly equivalent to retirement ages in most developed countries is said to be the beginning of old age. In many parts of the developing world, chronological time has little or no importance in the meaning of old age. Other socially constructed meanings of age are more significant such as the roles assigned to older people; in some cases it is the loss of roles accompanying physical decline which is significant in defining old age. Thus, in contrast to the chronological milestones which mark life stages in the developed world, old age in many developing countries is seen to begin at the point when active contribution is no longer possible" (Gorman, 2000).

Age classification varied between countries and over time, reflecting in many instances the social class differences or functional ability related to the workforce, but more often than not was a

reflection of the current political and economic situation. As far back as 1875, in Britain, the Friendly Societies Act, enacted the definition of old age as, "any age after 50", yet pension schemes mostly used age 60 or 65 years for eligibility (Roebuck, 1979). The UN has not adopted a standard criterion, but generally uses 60+ years to refer to the older population. When attention was drawn to older populations in many developing countries, the definition of old age many times followed the same path as that in more developed countries, that is, the government sets the definition by fixing a retirement age. Considering that a majority of old persons in developing countries live in rural areas and work outside the formal sector, and thus expect no formal retirement or retirement benefits, this imported logic seems quite unconvincing. Further, when this definition is applied to regions where relative life expectancy is much lower and size of older populations is much smaller, the utility of this definition becomes even more limited. A Government servant in some regions in India retires at the age of 58, a university faculty somewhere at the age of 60 and elsewhere at 62 and if in central university he is to retire at the age of 65 and a Vice-Chancellor of University can continue upto the age of 70. There is no retirement age in politics for contesting elections and getting into ministry and one can continue as long as feeling comfortable and confident.

The results of an international anthropological study comprising multiple areas in Africa, provides a basis for a definition of old age in developing countries (Glascock, 1980). Definitions fell into three main categories: (1) chronology; (2) change in social role (i.e., change in work patterns, adult status of children and menopause); and (3) change in capabilities (i.e., invalid status, senility and change in physical characteristics). Results from this cultural analysis of old age suggested that change in social role is the predominant means of defining old age. When the preferred definition was chronological, it was most often accompanied by an additional definition. These results somewhat contradict the findings of another study conducted in Nigeria regarding perceptions about the onset of old age (Togonu-Bikersteth, 1988). Younger and older age groups had similar responses regarding the chronological onset of old age, with differences in the stated age for men and women. The results suggested that the generally accepted

definition was similar to westernized definitions of old age; however, this was a unique community with culture-related norms that bestowed certain privileges and benefits at older ages. If one considers the self-definition of old age, that is old people defining old age, as people enter older ages it seems their self-definitions of old age become decreasingly multifaceted and increasingly related to health status (Brubaker & Powers 1975, Johnson, 1976). While a single definition, such as chronological age or social/cultural/functional markers, is commonly used by, amongst others, demographers, sociologists, anthropologists, economists and researchers, it seems more appropriate to use a combination of chronological, functional and social definitions. Such an assumption marks the beginning of multidisciplinary character of social gerontology if not the end.

Growth and Scope of Social Gerontology

Gerontology is derived from the Greek word 'geron' meaning "old man" and 'logy' meaning "study of". It was coined in 1903 by Ilya Ilyich Mechnikov, a Jewish-Ukrainian biologist, best remembered for his pioneering research into the immune system. It is the study of the social, psychological and biological aspects of ageing. It is distinguished from geriatrics, which is the branch of medicine that studies the diseases of the elderly. Ageing is not merely the passage of time. It is the manifestation of biological events that occur over a span of time. However, there is really no perfect definition of ageing. The focus of gerontology is on determining answers about the normal ageing process rather than the diseases of old age. Gerontology came to be increasingly recognized with the establishment of the Gerontological Society of America taking place in 1945 (Bass, 2009). These pioneering scholars also established the Journal of Gerontology, which was first issued in 1946 (Achenbaum, 1995). Gerontology sought to bridge the worlds of life sciences, medicine, and the social sciences in a comprehensive view of the aging individual within a larger societal context. Despite its more than sixty years history, gerontology has fallen prey for a variety of different reasons to its lack of advancement in shared methodologies and accepted theories (Bass, 2006; Lowenstein, 2003; Ferraro, 2006; Hagestad & Dannefer, 2001; Katz, 1996; Longino, 2005).

The initial knowledge on age and aging grew around multidisciplinary concerns centered on evolutionary biology of aging such as biodemographics and biopsychosocial theory of healthy aging. Biodemography is a new branch of human demography concerned with understanding the complementary biological and demographic determinants of and interactions between the birth and death processes that shape individuals, cohorts and populations. Biodemography serves as a “looking glass”—to complement, engage and inform research on human aging through theory building using mathematical and statistical modeling, hypothesis testing using experimental methods, and coherence-seeking using genetics and evolutionary concepts. Biopsychosocial theory advanced argument in favor of healthy and meaningful aging. Healthy aging is defined not by longevity alone but also by sufficient well-being (in multiple domains such as biological, psychological, social, spiritual, economic, and medical) to sustain a capacity for functioning adequately in changing circumstances. The determinants of such well-being and functional status are manifold and include the genetic endowment, physical environment, social environment, population and individual responses to challenges, the occurrence of disease, availability and effectiveness of health care, and personal prosperity.

Gerontology is not merely the study of aging or the study of the problems of the aged as understood by independent subject disciplines or the individuals writing proposals for research grants (Bass, 2009: 352–53). Gerontologists deal with three general sets of themes as they attempt to analyze and understand phenomena of ageing (Bengtson, *et al.*, 2000). The first set of issues concerns the aged as such: populations that can be categorized as elderly in terms of their length of life or expected lifespan as members of a society. A second set of themes involve ageing as a developmental process occurring over time longitudinally. Here the focus is on how individuals of a species grow up and grow old—the processes of development, growth, and senescence over time—and the biological, psychological, and social aspects of that process, including its variable rates and consequences. The third set of themes relates to the study of age as a dimension of structure and behavior within species. This is of obvious interest to sociologists and other social scientists examining human populations, and the social

organization they create and modify, in response to the age-related patterns of birth, socialization, accession to adult status, and retirement or death within the human group. The phenomena to be explained here concern how age is taken into account by social institutions; examples include the labor market, retirement, pension systems, and health care organizations. These three concerns are quite different in focus and inquiry; yet they are inextricably interrelated in gerontological research and practice. The process of theorizing serves, in part, to disentangle these problems of aging and to address each as distinct but mutually dependent phenomena. The problems of gerontology touch deep concerns of the body, the individual, the society and ageism in the life span. When premature deaths such as death in childhood, youth, or adulthood prior to retirement occur, they create a sense of shock. Aging thus may be constructed on the life experiences of an individual and how individuals view the age of an individual. While young one may claim old and while old one may claim young leaving scope for popular perceptions on such individual in question. Modi (2001) says 'more than any other social phenomenon, ageing, in its varied ramifications, particularly its socio-psychological dimensions, has acquired unprecedented significance both nationally and internationally'. It is here that one can look for social perspectives.

Ferraro wrote about what he calls seven tenets of the gerontological imagination. According to Ferraro, they include concepts such as (a) ageing and causality—those items frequently attributed to age may not be age-related phenomena with gerontologists keeping a healthy skepticism for what is an age effect; (b) ageing as multifaceted change—changes associated with growing older are not necessarily linearly associated with chronological age, with the process of ageing being multidimensional in nature and involving changes touching on biopsychosocial influences; (c) genetic influences on ageing—the individual genetic makeup has profound influences through the entire life course; (d) ageing and heterogeneity—the diversity of the population is positively associated with ageing; (e) ageing and life course analysis—ageing is not just for the old but occurs throughout the years, and this lifelong perspective helps understand later life; (f) ageing is cumulative—similar to item e, advantages and disadvantages for individuals and groups accumulate over many years; and (g) ageing

and ageism—ageism remains a phenomenon that is part of modern society and may exist even among the aged themselves (Ferraro, 2006).

Alkema and Alley (2006) identify three unique gerontological theories and orienting frameworks: (a) a life course perspective, (b) cumulative advantage and disadvantage theory, and (c) ecological theories in ageing. They point out that in an earlier work, Morgan and Kunkel (1998) identify two foundational elements in gerontological research, including (a) time-related change at levels that vary from cells to society and (b) a recognition that these time-related changes interact, respond to, and influence changes on other levels and dimensions from various systems and events (*Ibid.*). What Ferraro's essay, Alkema and Alley's article, and Morgan and Kunkel's book provide, is a framework that covers all of gerontology—vast territory that is beginning to emerge with some consistency in perspective. Within social aspects of gerontology, there have been numerous contributions that include a life course perspective, rational choice perspective, cumulative advantage/disadvantage theory, and exchange theories.

In the 1990s, the sociology of ageing focused on change and stability across the life course. Life course perspectives have enriched ageing research in several ways (Elder 1995; George 1993). First, a life-course approach is attractive because it recognizes that the past is prologue to the future. That is, status and personal well-being in late life depend in large part on events and achievements experienced earlier in the life course. Second, life course perspectives emphasize relationships across life domains, recognizing that, for example, family events affect and are affected by work and health. Traditionally, sociological research has focused on specific life domains (e.g., the sociology of work, the sociology of the family); life-course perspectives, in contrast, are person-centered rather than domain-centered. Third, life-course perspectives focus on the intersection of history and personal biography. Although the macro-micro schism remains difficult to bridge, life-course research has documented some of the complex ways that historical conditions affect personal lives both contemporaneously and over subsequent decades. Rational choice theory posits that individual behavior and attitudes are rationally calculated to further an individual's self-interest. The theory of cumulative advantage/disadvantage is also called the theory of

cumulative inequality. While social advantage and disadvantage are often seen as outcomes for individuals, the term inequality emphasizes the importance of systemic properties in how individuals become stratified. The underlying assumption for many scholars has been that disadvantage and advantage accumulate inversely—the failure to accumulate advantage is presumed to be synonymous with the accumulation of disadvantage (Dannefer, 2003). Indeed, this theory suggests accumulating benefits for those already advantaged and accumulating loss for those who are disadvantaged early (Ferraro *et al.*, 2009: 413–433). Advantage for some, often means disadvantage for others. Exchange Theory calls attention to how bargaining power decreases as we age. Exchange theory argues that social interaction between individuals is based on rational calculations and that people seek to maximize their rewards from these exchanges and minimize their costs; exchange theorists argue that interaction between the old and the young decreases, because older people have fewer resources to bring to the exchange. Amidst such numerous contributions, there are skeptics as well and theorizing social gerontology does not appear to be an easy challenge. Hence, there arises the scope to delve into the stakes and strengths of theorizing social gerontology.

The Stakes and Strengths of Theorizing Social Gerontology

In fact, skepticism about the importance of theory of gerontology has led some researchers to substitute empirical models for theory and has led others to wash their hands of theory entirely (Bengtson, *et al.*, 2000). The effect of these reactions has been to substitute empirical monologues for theoretical dialogues about age and aging. Thus, while many empirical generalizations have been developed describing aging, relatively few of these have been employed in the more fundamental tasks of understanding and explaining aging. Such skepticism has retarded the process of connecting findings to explanations, and thereby undermined the enrichment of knowledge about phenomena of aging. A review of articles published between 1990 and 1995 in eight major journals relevant to the sociology of ageing (Bengtson *et al.*, 1997) revealed that 72 per cent of them made no mention of any theoretical tradition in the literature as relevant to the empirical “findings” reported. The authors conclude that “the ad hoc, descriptive, model-based (rather than explanatory or theory-based)

approach to research is ineffectual, over time” and that “if authors, journal reviewers, and editors ignore the need for explicit explanation in data analyses, it is not likely that we will achieve much cumulative knowledge development in social gerontology” (Ibid.: 75). Powell’s paper (2001) faces up to Bengtson, *et al.*’s (1997) challenge and is concerned with finding theoretical ideas which have informed social understanding of age and aging in recent years. Powell argues that Bengtson, *et al.*, (Ibid.) are correct to assert the poverty of theory in social gerontology, but it would be folly to suggest that no theories exist.

In addition to the depth of understanding that theoretically based research provides, the breadth of pragmatic justifications for theory can be seen in four ways (Bengtson, *et al.*, 2000): 1. Linking fact to theory—A good theory not only summarizes the many discrete findings from empirical but also helps in establishing linkages among the crucial observations, variables, or theoretical constructs. 2. Explanation of models: A useful theory provides not only description of the ‘why’ and ‘how’ of the empirically observed phenomena (this is what “models” reflect) in a logically sound account incorporating antecedents and consequences of empirical results. 3. Further research on not yet known or observed: Research based on theory can lead to subsequent discoveries based on principles proposed by earlier theory. 4. Interventions to improve human conditions: Theory is valuable when we attempt to apply and advance existing knowledge in order to solve problems or alleviate undesirable conditions.

Some critics argue that a few misguided gerontologists are still squandering their resources trying to construct theories of aging. To them, theory is the domain of armchair academics with too much time on their hands. Theory is often held in opposition to “fact” and seen as no more than lofty speculation. Further, the desire for specific solutions to pressing problems facing elderly individuals can frame theory as a superfluous abstraction from practical concerns. The most radical critique comes from postmodernists who claim that there is no objective truth or reality to move toward, so theorizing amounts to grasping at thin air. Technological sophistication in statistical modeling—but not theoretically based explanations was encouraged in the peer reviewed journals. Applications of research findings to

specific problems—but not basic research to advance theoretical development—seemed to be the priority of sponsors. At the same time, while some critics claim ‘The End of Science’ (Horgan, 1996), some post-modernists suggested that the very enterprise of theoretical explanation was little more than intellectual nonsense on the other. Critical theorists seek to question the underlying assumptions of scientific “knowledge”; to expose what they feel are political perspectives on that knowledge; and to give credence to the meanings and experiences of the underrepresented, less powerful groups in society. In social gerontology, for example, recent applications of chaos theory to problems of aging (Hendricks, 1997) have shifted the focus away from central tendencies and linear patterns toward an appreciation of diversity and complex, nonlinear progressions. Accordingly there were more critics of theorizing in social gerontology than the votaries. Theorizing in social gerontology suffered (Bengtson, *et al.*, 2000; 2009) due to three debatable factors: (a) the quest for grand/macro theory or factor specific micro one; (b) The primacy of action over theory; and (c) Post-modernism and Feminism Critics.

The Quest for Grand/Macro Theory or Factor Specific Micro One

Talcott Parsons was a key exponent of general functionalist thought and argued that society needed certain functions in order to maintain its well-being: the stability of the family; circulation of elites in education drawing from a “pool of talent” (Giddens, 1993). Society was seen as akin to a biological organism—all the parts (education/family/religion/government) in the system working together in order for society to function with equilibrium. Parsons (1951) proposed that if we could articulate the laws and general principles of social action, then the specific problems of human society and their possible solutions would become clearer. Some of the early theories of gerontology include the disengagement theory (Cumming & Henry, 1961), activity theory by Havighurst and Albrecht (1953), theory of diminishing homeostatic capacity with ageing by Cannon, Walter B., (1942) and modernization theory developed by Cowgill, D., and Lowell Holmes (1972).

Both disengagement and activity theories postulate not only how individual behaviour changes with ageing, but also imply how it

should change. Disengagement theory is associated with Cumming and Henry and proposes that gradual withdrawal of older people from work roles and social relationships is both an inevitable and natural process: ‘...withdrawal may be accompanied from the outset by an increased preoccupation with himself: certain institutions may make it easy for him’ (Cumming and Henry, 1961: 14). For this variant of functionalism, this process benefits society, since it means that the death of individual does not prevent the ongoing functioning of the social system. Cumming and Henry further propose that the process of disengagement is inevitable, rewarding and universal process of mutual withdrawal of the individual and society from each other with advancing age—was normal and to be expected. This theory argued that it was beneficial for both the aging individual and society that such disengagement takes place in order to minimize the social disruption caused at an ageing person’s eventual death (Neurgarten, 1996). Retirement is a good illustration of disengagement process, enabling the aging person to be freed of the responsibilities of an occupation and to pursue other roles not necessarily aligned to full-pay of economic generation. Through disengagement, Cumming and Henry argued, society anticipated the loss of aging people through death and brought “new blood” into full participation within the social world (Powell, 2001).

Activity theory is a counterpoint to disengagement theory and actually pre-dates disengagement theory (Powell, 1999). In the 1950s Havighurst and Albrecht (1953) insisted ageing can be lively and creative experience. Any loss of roles, activities or relationships within old age, should be replaced by new roles or activities to ensure happiness, value consensus and well-being. For activity theorists, disengagement is not a natural process as advocated by Cumming and Henry and as such the theory is inherently ageist and does not promote in any shape or form ‘positive ageing’. Thus, “activity” was seen as an ethical and academic response to the disengagement thesis which re-casted retirement as joyous and mobile. To them, disengagement theory underplays the cultural and economic structures. This theory engages in sociological reductionism in pre-supposing that ‘old age’ is bound up with the explanation of ‘disengagement’ and engages in ‘functional teleology’ (Giddens, 1993) in attempting to

explain old age in terms of its effects or 'death'. Also, Kastenbaum (1993) claims disengagement theory represented a threat to the promotion of a positive and involved lifestyle for ageing persons across the life course. Both advocate a retired old age as a 'natural' period of transition. Nevertheless, Activity theory is not without flaws. It neglects issues of power, inequality and conflict between age groups. An apparent 'value consensus' may reflect the interests of powerful and dominant groups within society who find it advantageous to have age power relations organised in such a way.

Whilst Phillipson (1998) sees such functionalist schools as important in shaping social theory responses to them, such theories 'impose' a sense of causality on aging by implying that one will either 'disengage' or will be 'active'. They are very macro orientated and fail to resolve tensions within age-group relations which impinge upon the inter-connection of 'race', class and gender with age. Cannon's Walter (1942) grand theory of diminishing homeostatic capacity with aging relates to the ability or tendency of an organism or cell to maintain internal equilibrium by adjusting its physiological processes. Adjustment means the goodness of fit between the perceived needs of old people and the extent to which they were able to fulfill these needs. There is predictable, progressive and universal deterioration in various physiological, mental, physical and behavioral systems.

Modernization theory was formalized in social gerontology mainly through the work of sociologists. In 1972, Cowgill and Holmes developed a theory of modernization as it related to aging and old age. Their position was that as societies modernized—undertaking the shift from farm and craft production within families to a dominantly industrial mode of production—repercussions of modernization would diminish the status of older people. Cowgill's later theoretical refinements (1993) identified four key aspects of modernization that undermined the status of older people: health technology, economic and industrial technology, urbanization, and education.

To Cowgill, improved health technology, has negative effects for older people. When people live longer, there is more competition in the labor market (Ibid.). Employers in industrializing societies prefer younger workers with new occupational skills to older workers, forcing older workers out of the labor market into retirement. Once

retired, loss of income, prestige, and honor arising from labor market participation lead to a decline in the status of older people. Modernizing advances in economic and industrial technology relegates older people to less prestigious and increasingly obsolete jobs. This often leads to reversing the roles of old and young. In traditional societies, older family members control family production, and younger ones are dependent on the old. When older people are excluded from the industrial labor market, they become dependent on the young, losing social status. Factory locations in urban areas are a magnet to young workers. The process of urbanization leaves older family members behind in rural areas, undermining the traditional extended family and the prominent position of older members within them. The new family form in modernizing societies is the nuclear family, and both social and spatial distance is increased between the young and the old, changing intergenerational relations. Modernization theory viewed upward mobility of the young as being accompanied by downward mobility among the elders in their families. Increased literacy, emphasis on the superiority of scientific over traditional forms of knowledge, and education targeted toward children can all create inequalities in the knowledge base among family members of different generations, making the generation gaps between young and old even wider. This general model of the relationship between modernization and aging predicts a linear relationship between the status of older people and the degree of modernization experienced in a given society. This theory, finds inverse variation relating between modernization and the status of older people.

Social Gerontology also has seen the rise and fall of “general theories” of aging (Achenbaum, 1995). It is argued that the attempt to filter complex social phenomena into universal principles can only lead to unwarranted reductionism and perhaps the perpetuation of inequalities. This general theory of aging was elegant, multidisciplinary, parsimonious, and intuitively provocative. However, its ambitious magnitude was quickly challenged in widespread debate and ultimately denounced (Achenbaum & Bengtson, 1994). Theories proposing universal mechanisms of social aging raise the issue of whether “old age” is a viable concept to apply equally to all people. The many ways people will experience later life

depend on how their life course trajectories are shaped by structural and personal factors (Bengtson, *et al.*, 2000; 2009). Increasingly, age-appropriate behaviors and roles are becoming more fluid. This complexity may be overlooked to the extent that theories focus on “the aged” as a unified category. Hence, theories that attempt to explain human aging as a general process are often oversimplified, and thus subsequently disregarded. At the same time, theories of ageing can foster an appreciation of aged heterogeneity by addressing the ways in which diverse aging experiences converge in patterns and themes.

The binary tension between macro and micro perspectives is to continue as long as individual is differentiated from social and more so biology is not sociology. The search for a grand theory is highly appealing to some gerontologists. Fry (2009) argues that a grand theory of aging is the ideal or the “Holy Grail”; it is the complexity of reality that may prevent us from achieving it. The strongest view supporting grand theory is that of Austad (2009: 147–162), which argues that a good theory will explain a variety of phenomena, providing explanations not only of the rule but also the exceptions to the rule. He further suggests that theories, unlike hypotheses, are mutually exclusive, and therefore cannot coexist. If one is demonstrated to be supported by empirical evidence, the other is debunked by default. On the whole, there is renewed interest in developing an all encompassing theory of aging in the social sciences. While it is clear that such explanation cannot be uni-disciplinary, the growing trend toward interdisciplinarity may indeed reflect an implicit pursuit of a general, all encompassing theory.

The Primacy of Action over Theory

Pragmatic concerns tend to pursue solutions to problems of aging more than their explanation. This assumes that aging is inherently problematic. Unfortunately, the search for solutions without regard to theory can lead to several problems, including unchecked assumptions, a lack of evaluative criteria, and the inability to build upon previous efforts. Students and new professionals in gerontology are often motivated to identify the problems of aging and help devise appropriate ways of dealing with them. Without theory, how can

gerontologists decide which problems are caused by aging itself, which are age-related phenomena, and which are not due to age at all? Implicit theories and assumptions are left buried, where they can neither be evaluated for possible bias nor for further utility (Palmore, 1990).

In fact, without theoretical underpinnings, one cannot explain why some programs flourish and others flounder. The relationship between social support and well-being among older adults is a telling example of the crucial link between theory and application in gerontology. For years, the guiding assumption among practitioners was that more support to elders brought more psychological well-being. Explicit testing of this implicit theory reveals that there is "too much of a good thing," such that excessive amounts of intergenerational support can undermine autonomy and cause distress (Silverstein & Chen, 1996). Social breakdown theory provides one explanation of why this might be the case (Bengtson & Kuypers, 1986). It proposes a cycle of increasing dependency among vulnerable older people whose self-sufficiency erodes with high amounts of support. The curvilinear relationship between social support and well-being has significant bearing on family care giving strategies and policy decisions. Not only do theories allow us to predict the effects and evaluate the implementation of applied gerontology, but they also enhance our learning from the success and failure of these applications. If some theories of aging are more useful than others in generating meaningful explanations and effective interventions, we must develop systematic methods of evaluating theories. Achenbaum and Bengtson (1994: 760) propose four criteria in evaluating the adequacy of theories in ageing. These include (a) logical adequacy, a measure of clarity, internal consistency, parsimony, and explanatory content; (b) operational adequacy, or the ability of the theory to be empirically tested; (c) Empirical adequacy, or the extent of credible and replicated evidence for the theory; and (d) Pragmatic adequacy, the usefulness of theory in prediction and intervention as well as its feasibility and practical relevance. Theories of ageing that meet criteria such as aforesaid will move gerontologists forward in generating answers and inciting further questions.

Postmodernism and Feminism as Critic to Theory Building

Postmodernists critique the theory-building process from its very foundations. Drawing from feminist and postmodern theorists Laws Glenda (1995: 112) suggests that “we must avoid essentialism, be sensitive to historical and geographical variations in the form of ageism, focus on the contested nature of the aged body and associated identities, and reject attempts at universalizing scholarship”. She suggests that our work focus on five sites of struggle around ageist identities: the labor force, the household, popular culture, the state, and the built environment, each of which is involved in the construction and reconstruction of the aged body (Ibid.). In gerontology, postmodernist scholars hold that categories such as “old” do not equally represent their members, and that no person embodies such an abstraction (Katz, 1996). They call attention to the interests and values that are presupposed by such categories. On an epistemological level, postmodernists critique the privileging of “scientific” knowledge as purported truth. Postmodern critiques of scientific theory challenge not only what theoretical discourse includes but what it excludes, drawing attention to what is left out of the discussion. Postmodernists question the “meta-narratives” that provide a context for theorizing. These “foundational discourses” are attacked for trying and failing to justify the legitimacy of Enlightenment traditions (Lyotard, 1984). The modernist idealization of reason as the key to enlightened society is rejected by postmodernist scholars, who tend to view science and social control, or knowledge and power, as inexorably linked (Foucault, 1973). Their “deconstructionist” critique of western philosophy cuts through the sterilized image of science. It calls for dissolution of the binary oppositions or “black and white” dualities that hold science in contrast to politics, myth, and rhetoric (Derrida, 1978). These dualities are identified as leading to the intellectual positioning of science as truthful and non-science as speculative “non-sense.” Moreover, scientific theories have the capacity to effect practical changes in matters of great concern. Unprecedented population ageing is one such matter that renders theory indispensable. Theoretical gerontology is relevant to both individual ageing and the changing age structures of population, potentially helping both age “successfully.”

Coupled with this, there has been an acceleration of Feminist insights into understanding age and gender as key identity variables of analysis (Arber & Ginn, 1995). Such insight votes for the view that there is a “double standard of ageing” with age in women having particularly strong negative connotations. Older women are viewed as unworthy of respect or consideration (Arber and Ginn, 1991). Arber & Ginn (1995) further go on to argue that as because women occupy lesser position in the society, in the discourse on aged, there is lesser focus on the gender dimension and hence aged women. Gratton and Haug (1983) argue that women were routinely excluded from retirement research. In fact, enough of literature is yet to be found contesting such critical feminist insight.

Social Gerontology and Multidisciplinarity

Over a period of time, subject disciplines tend to make a stake of their independent claim (Bengtson, *et al.*, 2000). In the biology of aging, for example, many researchers seem focused on empirical models of aging at the cellular or molecular levels, relegating integrative theories of aging to other investigators (Finch, 1990). In the psychology of aging, the quest of experimental models of age differences has not gone with similar efforts at integration of findings with theory (Birren & Birren, 1990; Salthouse, 1991). Moral philosophy inquires into the nature of time, age, ageing and meaning in life as a forum for interdisciplinary theory. Legal practitioners contend that elder law embodies the diverse areas of law employed for the resolution of legal problems for the senior citizens. It is not a separate corpus of legal rules as may be applicable to subjects such as real property, torts, corporations and trusts. Rather, the elder law practitioner must be prepared to advise the client(s) and his/her family on a variety of legal and quasi-legal issues (Abrams and Russo, 1991: 34). While acknowledging that there is and will continue to be major age, aging, time and society-related research done within a single disciplinary perspective, it is important to note that a smaller but growing number of scholars have staked out gerontological intellectual territory, drawing on traditions from multiple disciplines. These gerontologists, predominantly from the social sciences, are pushing the discourse and understanding of the social aspects of gerontology. In the sociology of aging there has also been an increase in empirical

analyses but a decrease in efforts at theoretical explanation concerning such critical phenomena as the consequences of population aging, the changing status of aging individuals in society, the social processes of aging in complex and changing societies, and the interdependency of age groups in the generational compact (Johnson, 1996; Bengtson, *et al.*, 1997). Turner (1989) and Phillipson (1998) raised concerns that social theory must be brought into the frame of analysing old age.

Despite some obvious theoretical contrasts or tensions within and across the various disciplinary approaches, there are striking similarities that can be noted among contemporary theorists of ageing (Gans Daphna, *et al.*, 2009: 723). The development of multi- and interdisciplinary theoretical frameworks not only better reflects the complex nature of the ageing process but also represents major progress in gerontology's advancement as a unique field of inquiry (Alkema & Alley, 2006). There is considerable overlap and interconnectedness among these areas of similarity. There is much empirical evidence in all disciplines that the passing of time is related to ageing phenomena. A meeting point is found in ageing as a life long process and the theory of wear and tear. Referred to as life span development in psychological and biological theories of ageing (Shringarpure & Davies, 2009), life course in sociological theories of ageing (Marshall, 2009), or life cycle models in economy of aging (Walker, A. 2006), the idea of ageing as a lifelong process appears to be universal across all disciplines. Ageing does not start at some arbitrary point in life but rather is a gradual, lifelong process. As a result, explaining ageing phenomena is dependent on the understanding of processes occurring earlier in the lifetime. The factors responsible, however, are not only intra-individual but also Inter-individual.

The concept of life span development is inherent to most biological theories of aging. The wear-and-tear theories (Shringarpure & Davies, 2009) suggest that aging is the result of an accumulation of harmful changes and a diminishing adequacy of self-repair mechanisms over time. In most biological theories of ageing the focus is on intra-individual change over time at the level of the molecule, cell, system, or organism. Wear-and-tear theories of aging view ageing as the accelerated accumulation of harmful events and the progressive weakening of self-repair mechanisms over time. Psychological theories

have traditionally viewed the decline in mental capacity with age from an intra-individual perspective. The biological theories of aging suggest that self-repair mechanisms decline in efficiency over the life span. Classical psychological life span development models (Erikson, 1959) view aging as a stage in the life span and focus on transitions from one state to the next over the life span. Successful attainment of goals in later stages in life is dependent on successful achievement of goals in earlier stages of the life span.

In contrast, most social theories discuss accumulation of characteristics from a population perspective, focusing on inter-individual divergences in health and financial resources with the passage of time. Further, differentiation leading to inequalities that magnify over time “is a not a property of individuals but of populations or other collectivities (such as cohorts)” (Dannefer, 2003: 327). Sociological theories suggest that inequality increases over time and that in old age differences across various population groups amplify. Marshall (2009) tracks the development of the life course theoretical perspective in the sociology of aging. What is different about the sociological use of the life course perspective is that it goes beyond consideration of time as a factor in ageing or change with age. Time is viewed as a contextual factor within which aging occurs (Baars, 2009).

Typically, these two lines of examination—those addressing intra-individual and those addressing inter-individual characteristics in explaining aging has come out to be significant. It is only through answering such questions that we can advance in our efforts to explain ageing as a lifelong process. As Krause (2009: 101–116) notes, theories of ageing must include consideration of social structure components, psychosocial and behavioral aspects, and biological and genetic processes. Grounding in a specific disciplinary orientation is generally considered a necessity for scientific research on ageing. Guided by a specific set of lenses, a defined point of view, the researcher has a clear sense of where to look and what he or she is interested in uncovering. However, when studying complex phenomena such as ageing, this disciplinary point of view may in fact hinder the development of knowledge. Using any uni-disciplinary point of view is too narrow a framework for understanding ageing. A uni-disciplinary point of view on aging creates a set of blinders rather than lenses, and this may

obstruct the ability to see other aspects of the aging process. Such an outlook not only limits the completeness of a theoretical understanding of the phenomenon of interest, but may also impede the scholar from asking the right questions.

The discussions herein illustrate that most if not all researchers in aging have moved away from the unidisciplinary model. Most have recognized the importance of crossing over disciplinary boundaries to search for explanations of theories of ageing. The cross-fertilization of different theoretical perspectives and knowledge bases is clear and loud. Accordingly, the movement toward cross-disciplinary theorizing can be conceptualized as a continuum. At the lower end, theorists may still operate from a paradigm that is consistent with one specific discipline but recognize the value of the work done in other disciplines. At the high end is full interdisciplinary theorizing and collaboration. The majority of the theoretical endeavors falls somewhere along the high end of the continuum. In fact, interdisciplinarity is the wave of the future. In the above backdrop, following six overarching principles (Baas, 2009: 368–371) emerge that may help to construct an integrated theory of social gerontology.

First, the individual is set in a larger sociopolitical environment. Individual options are highly influenced by the social structures that support them. The experiences encountered later in life are different for the individual with an adequate pension compared to the individual who has little or none; the same is true if health care is provided at low cost, if housing is affordable, and if there is a support system in place. Even the ability to imagine possibilities can be shaped by these powerful external forces.

Second, these larger, often invisible macro level influences are dynamic and change over time and vary among nations. That is, the nature of labor, the economy, world events, and the public–private financial benefit systems will vary at different historical moments and in different locations. For example, the experience of an older Iraqi during wartime in 2007 is quite different than it will be for an older person in a less stressed part of the world.

Third, advantages and disadvantages accrue over the life course. An assumption of an integrative theory is that late life is but a point in time in an individual's life path and that to understand that experience

requires an understanding of the accumulated experiences throughout the life course.

Fourth, from an integrative social gerontological perspective, the psychological, social, cultural, and economic consequences of bodily changes are of interest. As the body inevitably changes through the aging process, how individuals respond and how society treats the aging individual are of concern (Gilliard & Higgs, 2000). For example, leaving work may have profound impact on income, status, role, meaning, identity, and interpersonal relations in the home. The structures associated with the care, how it is financed, and who provides the care, are examples of the kinds of analysis that would be relevant under this broader theoretical theme.

Fifth, the influence of policy development in democratic societies is politically stratified. Putnam Robert (1976) argues that there is a stratification of those who influence public policy. There are those individuals in positions of influence who may have the power to make decisions and craft policies. They are surrounded by influential individuals and voters whose agenda, values, and self-interests may be quite different from those in the gerontology community. In addition, but with less direct influence, there are activists who have an explicit and clearly defined view on a specific policy and make their voice heard through letters, campaigns, publications, the media, and public demonstration.

Sixth, the relationship between the individual and social, economic, and political forces is dynamic. It is essential for a counter perspective to challenge the prevailing perspective on social gerontology as social and political structures change and adapt (Phillipson, 2006: 165). Disagreement in interpreting these changes, is fundamental to a successful social gerontology model and theory, as the ideas put forward demand rigorous debate prior to acceptance and, once accepted, is subject to further debate.

An Overview

The purpose of this paper has been to amalgamate the key ideas of social gerontology in order to stress the importance of social philosophy towards understanding age and ageing. By recognizing common themes, researchers can identify future areas of theory

building and research that will benefit from cross-disciplinary collaboration. Additionally, by finding common threads that cut across the various disciplines, it can not only summarize what is already known but also decide on new research initiatives that should be pursued in the future. One can begin to raise new questions about ageing phenomena and theorize about possible explanations.

Thus the theoretical claims of social gerontology within the broad ambit of multidisciplinary concerns are brought in order. First is the importance of developing theories that reflect the lifelong process of ageing. Explaining aging, from the cell to the person, is dependent on understanding processes manifest earlier in life. Second, cumulative advantage and disadvantage over the life course is an important aspect of ageing at both the individual and population levels. The concept of accumulation of benefits or liabilities with aging is common to almost all current theories across all disciplines. A third common theme is the interface between context and individual in aging. There is consensus across the disciplines constituting gerontology that understanding the environment and the individual's place within it is crucial for understanding the ageing process whether at the molecular or the societal level. Fourth, there appears to be a common interest in attempting to explain variability in aging—differences between individuals, across populations, between species—rather than focusing on universal characteristics. This is an interesting development; most theoretical work in ageing earlier attempted to identify common, or universal, predictors of age differences.

What is still needed in this field is a deeper understanding of how processes external to the individual variously interact with internal mental and physical changes, and how ageing individuals give meaning to those internal changes and society's response to them. Developing a comprehensive explanation of how and why ageing-related changes occur is likely to be the goal of future theories of ageing. Accordingly by considering dynamic mechanisms across multiple systems and levels of analyses, and increasing the permeability of disciplinary boundaries, we will move the field toward more comprehensive solutions to the multifaceted puzzle of ageing.

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Nutritional Aspect of Physical Health Related Quality of Life in Elderly

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ABSTRACT

A descriptive study was conducted to assess the nutritional aspect of physical health related quality of life among elderly clients attending MGM Medical College Hospital. 50 elderly (65–75 years) of both the sexes were selected by non probability convenient sampling technique. They were administered standardized Mini Nutritional Assessment tool (MNA) consisting of decline of food intake, weight loss and psychological stress or acute disease suffered over the past 3 months, body mass index (BMI), mobility status and presence of neuropsychological problems. Males constituted 62 per cent and females 38 per cent, 62 per cent had moderate decline in food intake, 34 per cent had lost weight between one and three kg and, 24 per cent more than three kg and 76 per cent had suffered psychological stress. BMI was 19–23 for 58 per cent and less than 19 for 19 per cent. Majority (72%) were able to go out. Mild dementia was present in 74 per cent and 8 per cent had severe depression. Fifty six per cent of them were malnourished, 40 per cent were at risk of malnutrition, and only 4 per cent were nourished. Study findings implicate the nurses to maintain nutritional aspect of Physical Health Related Quality of Life.

Key Words: Nutrition, Physical Health, Quality of life, Elderly clients, Mini Nutritional Assessment tool. (MNA®)

Despite, significant medical advances, prevalence of malnutrition, remains a significant and highly prevalent public health problem worldwide among the elderly. Several risk factors for malnutrition have been identified, including physical, social, and medical factors. Physical factors that affect malnutrition include oral health, physical impairments, early satiety, and taste and smell changes (Hall & Brown, 2005). Poor dentition can cause difficulty with chewing food and swallowing, leading to a decrease in nutrient intake. Physical impairments such as physical immobility or the inability to feed oneself can cause difficulty in acquiring, preparing, and eating foods. Elders also experience early satiety and physiological appetite loss (Visvanathan & Chapman, 2009).

Malnutrition significantly increases morbidity and mortality and may influence the outcome of other underlying condition and disease. Malnutrition may delay recovery and prolong hospitalization, lead to increase the susceptibility to infection, impede individual independency and quality of life. In India, the problem and issues of its grey population have not been given serious consideration and only a few studies have been conducted on this issue. Evaluation of nutritional status is important for any nutrition or dietary modification. The investigators' observation of geriatric population, found that the elderly people are unable to meet their nutritional needs. This has prompted the investigators to take up this study. Moreover timely intervention can stop weight loss in elderly at risk of malnutrition or under nourished.

The purpose of this study was to assess the nutritional aspect of physical Health Related Quality of Life among elderly clients of MGM Medical College Hospital, Kamothe.

Method

Randomly selected 50 elderly clients (65–75 years) of both the sexes were administered standardized Mini Nutritional Assessment (Nestle, 2012). This tool consists of six items to assess decline of food intake, weight loss and psychological stress or acute disease suffered over the past three months, body mass index (BMI), mobility status and presence of neuropsychological problems.

Inclusion criteria: Elderly

- between 65–75 years of age.
- who are willing to participate.

Exclusion criteria: Elderly diagnosed with cancer, ESRD or terminal illness.

Results

Males constituted 62 per cent and females 38 per cent. In relation to decline of food intake, 62 per cent had a moderate decline, 16 per cent had severe decrease and 22 per cent did not have any decrease (Figure 1). In relation to weight loss, 34 per cent had weight loss between one and three kg, 24 per cent had weight loss of more than 3 kg, 12 per cent didn't have any weight loss and 30 per cent did not know about weight loss (Figure 2). With regard to psychological stress 76 per cent had suffered psychological stress and 24 per cent did not have psychological stress (Table 1). BMI was between 19–21 for 30 per cent, 21–23 for 28 per cent and less than 19 for 19 per cent of the clients (Figure 3). In relation to mobility, 72 per cent were able to go out, 26 per cent were able to get out of bed/chair but doesn't go out, 2 per cent were bed/chair bound (Table 2). In relation to neuropsychological problems, 74 per cent had mild dementia, 8 per cent had severe depression and 18 per cent had no psychological problems (Table 3).

Table 1

Description of Samples Based on Presence of Psychological Stress or Acute Disease in the Past Three Months

n = 50		
<i>Presence of Psychological Stress or Acute Disease in the Past Three Months</i>	<i>Frequency</i>	<i>%</i>
Yes	38	76
No	12	24

Findings from Table 1 shows that majority (76%) have suffered psychological stress and 24 per cent did not have any psychological stress.

Table 2
Description of Samples Based on Mobility Status

n = 50		
<i>Mobility Status</i>	<i>Frequency</i>	<i>%</i>
Bed or Chair bound	1	2
Able to get out of bed/Chair but does not go out	13	26
Goes out	36	72

Findings from Table 2 shows that in relation to mobility majority-36 (72%) were able to go out, 13 (26%) were able to get out of bed/chair but does not go out and 1 (2%) were only bed or chair bound.

Table 3
Distribution of Samples Based on Presence of Neuro-Psychological Problems

n = 50		
<i>Presence of Neuro-Psychological Problems</i>	<i>Frequency</i>	<i>%</i>
Severe dementia or depression	3	6
Mild dementia	37	74
No psychological problem	10	20

Findings from Table 3 shows that in relation to Neuro-psychological problems, majority 37 (74%) had mild dementia, 10 (20%) had no psychological problem and 3 (6%) had severe dementia or depression.

Figure 1 depicts that in relation to decline of food intake, majority (62%) had a moderate decline, 22 per cent didn't have any decrease and 16 per cent had a severe decrease.

Figure 2 depicts that majority (34%) had a weight loss between 2.2 and 6.6 lbs, 30 per cent does not know about their weight loss, 24 per cent had a weight loss more than 6 lbs whereas 12 per cent did not have any weight loss.

Figure 3 depicts that majority (30%) had a BMI between 19 and 21, 28 per cent between 21 and 23, 22 per cent with less than 19 and only 20 per cent with BMI greater than 23.

Figure 1
Distribution of Elderly Patients Based on Decline of Food Intake for Past Three Months

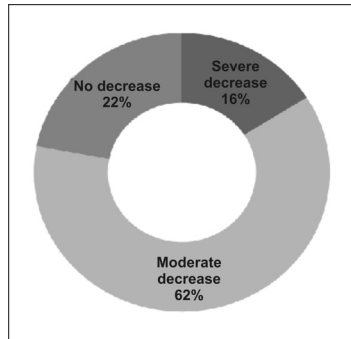


Figure 2
Distribution of Elderly Patients in Relation to Weight Loss During Last Three Months

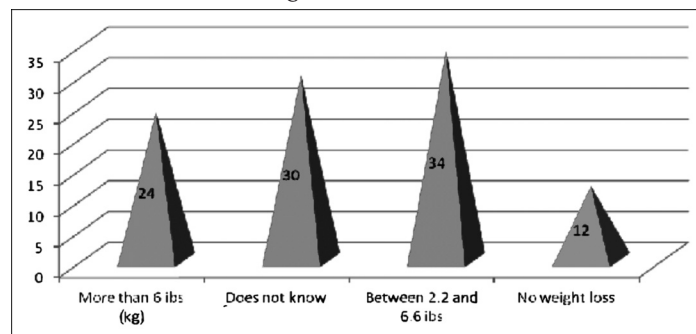
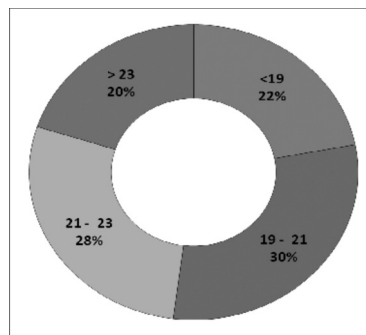


Figure 3
Distribution of Elderly Patients in Relation to Body Mass Index



Discussion

In the present study 56 per cent subjects were malnourished, 40 per cent were at risk of malnutrition, and only 4 per cent were nourished whereas a cross-sectional study (Aditya, *et al.*, (2010), conducted to estimate the prevalence of malnutrition among free-living elderly in a rural population of south India revealed that 14 per cent of the 227 subjects were malnourished and 49 per cent were at risk of malnourishment. No significant difference was found between men and women. Baweja S., *et al.*, (2008) in their cross sectional study of 1,000 elderly subjects of age 60 years or above, used Nutritional status assessment scale of consisting 18 items (30 points), Mini nutritional assessment (MNA) scale which included questions regarding appetite, mobility, acute and chronic illness, medication history, dietary history, anthropometric and self perception of nutritional status and health. The study revealed that 7.1 per cent elderly were malnourished while 50.3 per cent were at risk of malnutrition and only 42.6 per cent were well nourished.

All of these studies reflect the prevalence of malnourishment and risk for malnutrition in the elderly population. Nutrition assessment should be an essential part of the nursing assessment that is routinely completed on all older adults. Nurses need to understand the importance of conducting a nutritional assessment as a strategy to prevent adverse outcomes.

Conclusion

Study highlights the poor nutritional status of elderly implicating the nurses to maintain nutritional aspect of Physical Health Related Quality of Life so as to ensure healthy and productive ageing. It also raises awareness among families and care professionals on the risk of malnutrition. Early detection is the key to management of malnutrition. Nutritional assessment and screening should be an integral part of the overall care of the elderly.

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