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Improvement in Lipid Regulation and Intestinal Microflora as a Result of Probiotic Curd Intake in Institutionalized Elderly

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ABSTRACT

In the present study, a case control trial was undertaken with 40 hypercholesterolemic institutionalized elderly subjects (age > 60yrs) wherein control group subjects received no supplementation and the experimental subjects were supplemented with probiotic curd comprising Bifidobacterium bifidum (BB-12), L.acidophilus, L.bulgaricus and Streptococcus thermophilus. The results showed a significant reduction in total cholesterol (TC) (3.57%), FBS (5.2%) and a significant increase in the mean log counts of fecal samples for Bifidobacteria from log 7.9 to log 8.23 and Lactic acid bacteria from log 6.43 to log 6.86 with a decrease in the mean log counts of E. coli from log 6.66 to log 6.28 in the supplemented group. It was found that daily consumption of probiotic curd significantly reduced FBS and TC concentrations and improves establishment of beneficial gut microbiodata in elderly people.

Keywords: Probiotic curd, Bifidobacteria, Lactic acid bacteria, older adults, lipid regulation.

Probiotics have been reported to be useful in preventing certain disease conditions as well as possibly promoting specific aspects of

human health. *Lactobacilli* and *bifidobacteria* are the most frequently used probiotics in humans, and there is evidence that some of these organisms can increase resistance to gut infections by inhibiting pathogens and improving host immunity (Yamazaki, *et al.*, 1985; Sekine, *et al.*, 1985). Probiotics offer attractive means where by the unfavorable changes in the aging gut can be reduced and a more “healthy” intestinal microbiota can be maintained. This may also help to maintain normal bowel function and reduce susceptibility to infection in older adults. They are known to improve or maintain colon health and immune function, lower cholesterol and glucose, increase the absorption of minerals. Probiotic-containing foods like yogurt and curd containing *Bifidobacteria* are recognized for their health attributes, which range from enhancing lactose digestion, treating diarrhea and improve bowel habits in adults (Bartram, *et al.*, 1994). Various effects have been observed in both man and animals following the ingestion of curd: increased numbers of indigenous lactic acid bacteria and bifidobacteria, alleviation of lactose maldigestion and stimulation of both immunity and antitumoral activity (Bartram, *et al.*, 1994; Bianchi and Vesely, 1994; Kalantzopoulos, 1997; Naidu, *et al.*, 1999). Apart from studies on constipation and transit time, where some reports indicate beneficial effects of probiotics, the usefulness of such supplements has been investigated only with healthy younger adults or with patients with specific pathological conditions (Ling, *et al.*, 1992; Bianchi, *et al.*, 2001). Little is known about the “throughout a lifetime” evolution of human intestinal microflora, despite the fact that some authors have observed a decrease in *bifidobacteria* and an increase in *lactobacilli*, *enterococci*, *enterobacteria* and clostridia in the elderly (Gorbach, *et al.*, 1967, Mitsuoka and Hayakawa, 1973; Hopkin, *et al.*, 2001). Owing to the increasing number of elderly people in the world it is important to prevent and treat disease and maximize the quality of life. Therefore, knowledge about possible alterations in the intestinal microbiota composition and biochemical activity linked to aging are of great interest. Moreover, there are no available data relevant to the intestinal microflora of the elderly concerning the effects of the consumption of milk products containing viable microorganisms which, through intestinal microbial balance improvement, are claimed to be beneficial to the host (Fuller, R. 189). As a target group for specialized foods, the older adults have received little attention compared to rest of the population. It is likely that the net

effect of probiotics on the composition of GI microflora and ensuing GI function in the older adults differs from that observed with younger adults due to the specific status of the aged GI tract. Therefore, the aim of the present study was to examine the effects of the daily intake of probiotic *curd* on the gut microflora, fasting blood lipids, plasma glucose, hemoglobin levels and general health of institutionalized older adults men and women with moderately raised TC levels.

Material and Methods

Study Design

The study design used was a randomized, controlled clinical trial. A total of 40 older adults from old age institutions of urban Vadodara, Gujarat, India with no major health complications participated in the study. Permission to undertake the study was obtained from the institute and approval was also sought from the institutional ethics committee of The M.S. University of Baroda (FHS/FND/8 dated 15.07.2006) (F.C.Sc./FND/ME27) dated 25.10.07. Written informed consent was obtained from every subject who participated in this study. Inclusion criteria included men and women above 60 years of age, diagnosed with hyperlipidemia (not on medication) and willingness to consume the *curd* product daily for a period of six weeks and maintaining the usual diet served at the institution.

Period of Intervention

The lunch of the participants in the experimental group were supplemented with 100 g of probiotic *curd* daily for a period for six weeks whereas control group received no intervention.

Composition of Probiotic Curd

The probiotic *curd* contained the cultures of *Lactobacillus acidophilus*, *Lactobacillus bulgaricus*, *Bifidobacterium*12 and *Streptococcus thermophilus*.

Compliance of Curd Consumption

The compliance was ensured through personal supervision by the research investigator during the lunch hours (12:30 pm to 1:30 pm). Daily diary was given to the participants to keep the record of *curd* consumption.

Baseline Information

Medical history, physical activity, diseases burden, *curd* consumption pattern, gastrointestinal symptoms, were assessed using a semi structured questionnaire before the experiment and at the end of the study period. Physical examinations were conducted at baseline including body weight, waist and hip circumference, and blood pressure. Body weight was assessed with lightweight clothing and without shoes, using electronic weighing balance whereas height was measured using the fibre glass tape. BMI was calculated using the standard formula (wt kg/ht m^2). Blood pressure was assessed using a mercury sphygmomanometer. Psychological background was assessed using a geriatric depression inventory (Yesavage, *et al.*, 1983). The inventory used had 30 questions with yes/no options. A score greater than 10 was confirmed depression.

Analysis of Blood Samples

Fasting blood samples were collected for determined of blood glucose, blood lipids and hemoglobin via venipuncture after an overnight fast (i.e. no food or drink for 12 hours). Participants were instructed to withhold medications prior to blood draws. Plasma glucose, hemoglobin and lipids were assessed using automatic analyzer (Mannheim, Germany).

Analysis of Gut Microflora

The gut micro flora was determined with respect to the microorganisms- *Lactic acid bacteria*, *Bifidobacterium* and *E.coli*. All fecal specimens were processed immediately or within 60 min. The media used for the enumeration of *Bifidobacterium* was Bifidobacterium agar supplied by HiMedia, Mumbai, India. The prepared media was autoclaved at 121°C for 15 minutes and then poured into sterile petriplates and was allowed to set (HiTouch Flexi, 2007). The enumeration of *Lactic acid bacteria* and *E.coli* was done using ready-made *HiTouch Flexi plates* supplied by HiMedia. HiTouch Flexi plates have ready to use sterile media supplied in flexible disposable plates, 55mm in diameter. It is grid scored on the base and is irradiated to ensure perfect sterility. These plates are specially developed for microbial testing, where not only counts are obtained but it is also possible to select and differentiate between groups of microorganisms. (HiTouch

Flexi, 2007). The Flexi plates were kept inside laminar flow under UV light before inoculating them with the samples.

Preparation of Sample, Inoculation and Incubation of Lactic Acid Bacteria, Bifidobacteria and E. Coli

One gram of fresh fecal sample was accurately weighed and homogenized in 0.1 per cent peptone water making the volume to 100 ml to provide 1 per cent (wt/vol) fecal slurry (10^{-2} dilution). One ml of slurry was diluted serially to obtain dilutions in the range of 10^{-4} to 10^{-12} . Thereafter 0.1 ml of dilution was pipetted from each of the dilutions to the petri plates containing respective media and the samples were spread with a bent glass rod. The surface plate technique was carried out inside laminar flow that ensures a sterile environment. The plates of *Bifidobacterium* were then placed in the anaerobic jar having gas packs and catalyst which ensured anaerobic environment inside the jar and incubated at 37°C for 48 hours. Flexi plates of *Lactic acid bacteria* were placed in a dessicator with calcium chloride and those of *E. coli* were directly placed in the incubator. The viable colonies were enumerated using a colony counter and the plates with 30–300 colonies were selected for calculation purpose. The final counts were multiplied with the dilution factor and calculated as log values per gram of sample (log CFU/g). The typical colonies of all the organisms were confirmed using the identification criteria mentioned in the Hi-Media manual (2007).

Species identification: Species of *Bifidobacterium* and *Lactic acid bacteria* were identified using carbohydrate fermentation kits supplied by HIMEDIA (plate 4.4). 2–3 colonies of typical bacteria were picked by a sterile loop and were diluted in 3ml saline water (1%) to make a homogenous mixture of which 0.1 ml was pipetted in wells of readymade carbohydrate fermentation kit. Different Lactobacilli and Bifidobacterium species have their own identical characteristics to react with specific carbohydrates and produce acid. Using this principle the bacterial species were treated with various carbohydrates and the results obtained were matched with the species identification chart. The identified species using fermentation test kits were confirmed if the results matched atleast 80 per cent of those mentioned in Bergy's Manual (Buchmann and Gibbons, 1974).

Statistical analysis: Data analysis was performed using the Statistical Package for the Social Sciences (SPSS15.0 version, SPSS Inc., Chicago, IL, USA). Correlation coefficient was carried out to study the association between gut microflora and biochemical parameters.

Results

Baseline Characteristics and Study Participation

Out of forty older adults participants enrolled, 68 per cent participants were aged between 60–70 years. The subject group under study had equal number of males and females. The monthly per capita income of the majority of the participants ranged between Rs 1000–3000 per month (US\$30–\$90). Majority of subjects were married and living with their spouses. Most of the subjects (98%) were Hindus and 60 per cent of the institutionalized elderlies were literate up to secondary and higher secondary levels. As seen in Table 1, Majority of elderly subjects (77.5%) preferred curd in their diets. Those who preferred curd in their diet had occasional to once a week consumption of curd. Fifty per cent of the participants avoided curd during diseases such as cough, cold, acidity and open wounds as they perceived that curd is sour and cold food and may aggravate their symptoms.

Table 1
Baseline Characteristics of the Elderly Under Study

<i>Baseline Characteristics</i>	<i>Per cent Subjects (N = 40)</i>
Gender (Male/Female)	20(50)/20(50)
PREFERENCE OF CURD	
Preference of curd- yes	36(90)
Preference of curd- no	4(10)
CURD CONSUMPTION PATTERN	
Consumption daily	0(0)
Consumption weekly	3(7.5)
Consumption occasionally	37(92.5)
No consumption	0(0)
REASONS FOR AVOIDING CURD	
Cough and cold	17 (42)

Contd...

Contd...

Acidity	16 (40)
Lactose intolerance	3(7)
Disease condition	5 (11)
ACTIVITY LIFESTYLE	
Sedentary lifestyle	33(82.5)
Active lifestyle	7(17.5)
HYPERTENSION	
Pre hypertensives	7(17.5)
Stage I hypertensives	22(55)
Stage II hypertensives	11(27.5)
BMI (ASIA PACIFIC CLASSIFICATION)	
underweight	1(2.5)
Normal	22(55)
overweight	11(27.5)
obese	6(15)

Figure in parenthesis denote per cent subjects

Medical history of the participants revealed that most of the participants were prehypertensive (52.0%). Majority of the subjects (55%) had BMI in the normal range (BMI classification; Asia Pacific), at the beginning of the study period. However, 42.5 per cent were overweight and obese and 2.5 per cent were underweight. As seen in Table 2, apart from sleep the institutionalized elderly remained idle for most of their time (6.4 hours), followed by social and religious activities, which included chatting with friends and neighbors, visiting relatives, doing prayers and attending functions. Subjects spent their leisure time by watching television, listening music, reading and writing.

Table 2
Activity Pattern of the Institutionalized Elderly Subjects

<i>Activities</i>	<i>Mean Hours Spent (n = 40)</i>
Activities of daily living	1.7 ± 0.7
Leisure activities	2.6 ± 2.1
Exercise	0.4 ± 0.2
Yoga	0.3 ± 0.6
Social/religious activities	3 ± 1.6
Idle/time	6.4 ± 2.2

Effect of Probiotic Curd Supplementation on Lipid Profile of the Participants

As seen Table 3, probiotic *curd* supplementation resulted in 3.57 per cent reduction in total cholesterol and 0.76 per cent increase in HDL levels respectively. A non significant reduction was seen in serum triglyceride in supplemented participants (2.96%). In the control group the lipid profile remained unaltered. There was a significant reduction in the TC in the male participants of the experimental group and a non significant increase of the HDL-C values in both male and the female participants (Figure 1).

Table 3

Effect of probiotic curd supplementation on metabolic parameters and body composition of institutionalized elderlies.

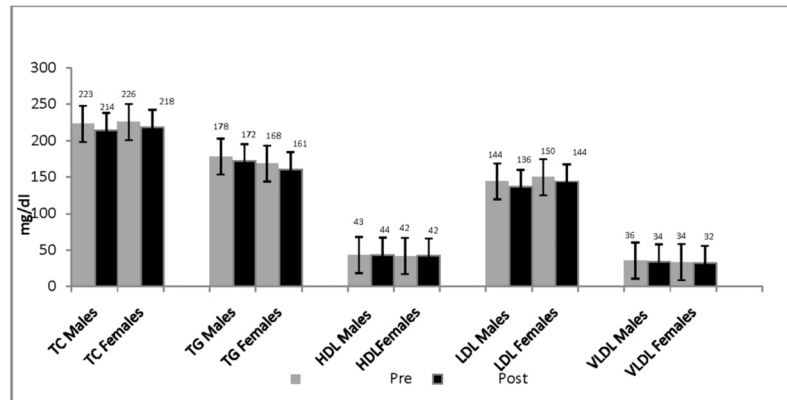
<i>Parameters</i>		<i>Control Group (n=20)</i>	<i>Experimental group (n=20)</i>
TC	Pre	222.49 ± 21.3	224.11 ± 20.44
	Post	223.37 ± 20.92	216.16 ± 24.16
	't' value	0.348 NS	2.906*
	% change	0.39	3.57
TG	Pre	169.96 ± 47.36	168.84 ± 32.21
	Post	171.35 ± 49.18	161.66 ± 43.14
	't' value	0.158 NS	0.744 NS
	% change	3.27	2.96
HDL	Pre	43.79 ± 4.50	43.74 ± 4.17
	Post	43.29 ± 4.79	43.02 ± 4.77
	't' value	0.921 NS	0.417 NS
	% change	1.03	0.76
LDL	Pre	144.70 ± 25.14	146.59 ± 22.09
	Post	145.81 ± 18.11	139.78 ± 27.76
	't' value	0.404	1.651
	% change	2.49	6.88
VLDL	Pre	33.99 ± 9.47	34.76 ± 7.35
	Post	34.27 ± 9.83	33.33 ± 9.58
	't' value	0.158 NS	0.744 NS
	% change	3.27	2.06
LDL/HDL	Pre	3.35 ± 0.76	3.42 ± 1.16

Contd...

Contd...

	Post	3.36±0.66	3.23±1.07
	't'value	0.578 NS	0.227 NS
		0.007	3.32
TG/HDL	Pre	3.90±1.13	4.38±1.01
	Post	4.23±1.41	4.06±1.32
	't'value	1.648 NS	1.038 NS
	% change	5.56	5.02
TC/LDL	Pre	1.55±0.15	1.95±0.59
	Post	1.55±0.14	2.00±0.67
	't'value	.380 NS	0.361 NS
	% change	0	6.18
TC/HDL	Pre	5.13±0.75	6.49±1.29 b
	Post	5.21±0.73	6.08±1.47a
	't'value	0.796	2.086
	% change	1.55	10.40
FBS	Pre	109.14±33.82	110.37±31.80
	Post	109.09±34.35	104.55±29.31
	't'value	0.347ns	4.089*
	% change	0.24	5.2
Hb	Pre	11.51±1.81	12.44±1.30
	Post	11.45±1.75	12.57±1.41
	't'value	0.486 ns	1.991 NS
	% change	1.10	0.95
Body Composition			
BMI	Pre	25.39 ± 2.29	24.63 ± 2.38
	Post	25.40 ± 2.28	24.52 ± 2.32
	't'value	0.748NS	2.129NS
	% change	0.039	0.44
Systolic	Pre	135.00 ± 19.12	143.25 ± 15.91
	Post	136.50 ± 12.25	142.25 ± 18.95
	't'value	0.436NS	0.183NS
	% change	1.1	0.69
Diastolic	Pre	90.0 ± 7.43	91.70 ± 7.46
	Post	93.5 ± 8.75	90.50 ± 8.41
	't'value	1.524	0.546
	% change	1.66	1.3

Figure 1
Lipid Profile of Male and Female Elderly Subjects Before and After Probiotic Fermented Milk Supplementation



Plasma Glucose of the Participants

A significant reduction of 5.2 per cent was observed in fasting plasma glucose values in probiotic supplemented group. Significant variation was seen in FBS levels with regard to gender, the response was better in the older adult males of probiotic *curd* supplemented group as compared to females.

Changes in Body Composition after Supplementation of Probiotic Curd Supplementation

There was a non significant 0.44 per cent decrease in BMI values in the probiotic group also a non significant reduction was observed in blood pressure in the probiotic supplemented group.

Gut microflora of participants before and after supplementation of probiotic *curd*

Analysis of gut microflora revealed that significant changes occurred for various bacterial counts in the stool samples of elderly people before and after the study period. The mean log values in CFU/g (wet weight) increased significantly for *Bifidobacteria* (from 7.90 to 8.23) and *Lactobacilli* (6.43 to 6.86) in group I participants. Decrease in mean log counts of *E.coli* was observed from 6.66 to 6.28 in probiotic group (Table 4).

Table 4
Gut Microflora of Older Adults before and After Supplementation of Probiotic Curd

<i>Gut microflora</i>		<i>Control group (n = 20)</i>	<i>Experimental group (n = 20)</i>
E. coli	Pre	6.40 ± 0.84	6.66 ± 1.2
	Post	6.47 ± 0.53	6.28 ± 0.96
	't' value	0.312	1.996*
	% change	1.09	5.8
Lactic acid bacteria	Pre	6.54 ± 0.93	6.43 ± 1.5
	Post	6.35 ± 0.40	6.86 ± 0.54
	't' value	1.932	2.700**
	% change	2.90	6.6
Bifidobacterium	Pre	8.17 ± 0.78	7.90 ± 2.0
	Post	8.02 ± 0.81	8.23 ± 1.1
	't' value	1.367	3.553**
	% change	1.80	4.17

Mental health assessment before and after supplementation of probiotic curd

As seen in Table 5, 45 per cent participants were normal at the baseline as compared to 60 per cent after supplementation in probiotic supplemented group.

Table 5
Per cent subjects under various categories of depression before and after the supplementation of Probiotic curd.

<i>Category</i>	<i>Per cent subjects (n = 20)</i>		<i>÷ 2</i>
	<i>Before</i>	<i>After</i>	
Normal	45 (9)	60 (12)	6.427*
Mild depression	20 (4)	20 (4)	
Moderate depression	20 (4)	10 (2)	
Severe depression	15 (3)	10 (2)	

Figures in parenthesis denote the no. of subject.

* = Statistically significant at $p < 0.05$.

Disease burden of the participants before and after supplementation of probiotic curd

Using exhaustive checklist method information regarding disease profile was collected from the participants and parameters like major health problems pertaining to various health systems of the body and minor illnesses were determined before and after supplementation of probiotic *curd*. It is clearly evident from Table 6, that 100 per cent of the participants in experimental group had oral cavity problems. Supplementation resulted in decrease in the number of subjects reporting gastrointestinal and respiratory problems, locomotors problems and problems of central nervous system in the probiotic supplemented group. There was decrease in the episodes of acidity, constipation, indigestion, gas formation, and stomachaches in probiotic supplemented group. After supplementation of probiotic *curd* for a period of 6 weeks 40 per cent and 30 per cent subjects reported reduction in acidity and constipation (significant at $p < 0.05$) (Table 7) (Significant at $p < 0.05$). There was reduction in participants reporting reversal from episodes of flatulence from 25 per cent to 0 per cent in the supplemented group.

Table 6
Per cent participants reporting disease burden before and after supplementation of probiotic curd.

Disease burden	Control group (n=20)		Experimental Group (n=20)	
	Pre	Post	Pre	Post
	N and %	N and %	N and %	N and %
Oral cavity problems	20 (100%)	20 (100%)	18(90%)	18 (90%)
Gastro intestinal problems	17 (85%)	18(90%)	15 (75%)	6(15%)
Respiratory problems	13(65%)	15(75%)	8(40%)	5(25%)
Cardiovascular problems	12(60%)	12(60%)	11 (55%)	11(55%)
Locomotor problems	17 (85%)	17 (85%)	9(45)	8 (40)
Neurological problems	10 (50%)	15(75%)	8 (40%)	2(10%)
Miscellaneous problem	11 (55%)	12(60%)	10 (50%)	2 (10%)

Regarding respiratory problems there was decrease in per cent participants reporting occurrence of cold from 30 per cent to 0 per cent, spells of sneezing from 15 per cent to 5 per cent, breathlessness from 15 per cent to 5 per cent in probiotic *curd* supplemented groups.

Table 7
Elderly subjects experiencing various gastrointestinal problems before and after supplementation of Probiotic curd.

GI problems	Per cent subjects (n = 20)		t value
	Before	After	
Constipation	40(8)	10(2)	4.8*
Acidity	65(13)	25(5)	6.2*
Indigestion	30(6)	10(2)	2.5
Loss of appetite	5(1)	-(0)	2.4
Gas/flatulence	25(5)	10(2)	1.46
Stomachache	5(1)	-(0)	2.4
Gastritis	5(1)	-(0)	2.4

* = Statistically significant at $p < 0.05$

Figures in parenthesis denote the no. of subjects

Discussion

This study demonstrated that supplementation of probiotic *curd* resulted in significant reduction in biochemical parameters such as TC, FBS. Consistent with these improvements there was a significant increase in mean log counts of beneficial microorganisms in the experimental participants.

The modification of intestinal microbiodata has beneficial effects on lipid metabolism are supported by studies using lactic acid bacteria and bifidobacteria. A study reported that the regular consumption of probiotic yogurt for 4 weeks exerted a positive effect on lipid profile (St onge, MP, *et al.*, 2000). In a study on 30 men supplemented with 125 ml of yoghurt – 3 times a day for 3 weeks, resulted in decrease in serum cholesterol by 4.4 per cent, LDL by 5.4 per cent and LDL: HDL ratio by 5.3 per cent. Increased numbers of Bifidobacteria and Lactic acid bacteria in the gut are closely related with improving the cholesterol levels in individuals (Gilliland, S.E., *et al.*, 1985). An enhanced

bile acid deconjugation and a subsequent fecal bile acid excretion having implications in the cholesterol reduction is associated with certain probiotics. Another mechanism postulated may be that the cholesterol from the growth medium of the fermented product is incorporated in to the bacterial cell membrane and thus escapes digestion. The cholesterol-lowering potential of *L. acidophilus* has been most widely studied. Lin *et al.* (1989), performed 2 studies: a pilot trial without a placebo and a large placebo-controlled trial. In the pilot trial, 23 subjects received tablets containing 3×10^7 CFU *L. acidophilus* (ATCC 4962) and *Lactobacillus bulgaricus* (ATCC 33409) daily for 16 wk, whereas 15 subjects received no tablets. Fasting blood samples were taken before and 7 and 16 wk after the start of the study. Serum cholesterol in the control group remained stable at 4.9 mmol/L; serum cholesterol in the experimental group decreased from 5.7 to 5.3 mmol/L after 7 wk ($P < 0.05$) and to 5.4 mmol/L after 16 wk ($P < 0.05$ compared with baseline and week 7). A second study with a double-blind, placebo-controlled and crossover design did not show a significant effect of lactobacilli on serum cholesterol. Two 6-wk study periods were separated by a washout period of 3 wk; 460 volunteers were enrolled and 334 completed the study. The mean serum cholesterol concentration after both treatments was 5.5 mmol/L. (ibid.)

Thompson *et al.*, (1982) studied the effect of supplemented milk fortified with lacto bacillus acidophilus, butter milk and yoghurt for a period of 3 weeks reported no significant changes in serum LDL levels. The findings of the present study showed similar reduction of total serum cholesterol levels and increase in serum HDL levels and a decreasing trend for TAG and LDL levels after supplementation with probiotic curd (ibid.). A number of factors may have contributed to the positive findings for effects of inulin or synbiotic supplemented group on TC levels in this study. The method of dietary intervention used was simple, designed to ensure optimal compliance and to prevent confounding changes in intakes of other nutrients or foods that might complicate the interpretation of the findings.

As seen in Table 3, there was a significant reduction ($p < 0.05$) plasma glucose levels in probiotic group. A recent study (Hata, *et al.*, 1996) has shown attenuation of both insulin and glucose

concentrations following long-term neosugar (OFS) feeding in rats. The effects were attributed to the actions of OFS on secretion of the gut hormones glucose-dependent insulintropic polypeptide and glucagon-like peptide 1. A study carried out in non-insulin-dependent diabetic participants demonstrated a significant lowering of blood glucose levels with OFS, however, very little is known about the effects of fructans, especially inulin, in normal healthy adults consuming a typical western-style diet. (Yamashita *et al.*, 1984)

Gallaher *et al.*, (2002), proposed that fiber could bind with bile acids and reduce solubilisation of cholesterol leading to a cholesterol lowering effect. The reduction of total cholesterol regulates the receptors of low density lipoprotein (LDL) and thus increases the clearance of LDL cholesterol (Aller, *et al.*, 2004). This overall cholesterol lowering effect could reduce the stiffness of large arteries and thus could potentially reduce blood pressure. In another study, Elderly hypertensive patients who consumed curd with a starter containing *Lactobacillus helveticus* and *Sacc. cerevisiae* experienced reductions in systolic and diastolic blood pressure (Hata *et al.*). However in the present study no significant reductions were found in the blood pressure levels of elderly subjects after supplementation of probiotic curd.

The fecal bifidobacterial levels observed in the present study prior to supplementation were within the range of those reported previously in older adults (Mutai and Tanaka, 1987). After supplementation of Probiotic curd, the gut microflora of the elderly subjects improved in terms of an increase in *Bifidobacteria* and *Lactic acid bacteria* (beneficial) counts and a reduction in *E. coli* (pathogenic) counts. Chen (1999) reported that ingestion of yogurt increased the numbers of stool *bifidobacteria* and suppressed *coliform bacteria*. Adults who were fed products containing high level of viable bifidobacteria over a five-week period demonstrated substantial decreases in *Clostridium* counts as well as an increase in *Bifidobacterium* counts. (Tannock, 1977). Acetic and lactic acids produced from catabolism of carbon sources lower intestinal pH inhibiting unfavorable bacteria such as *Escherichia coli* and *Clostridium perfringens* that produce toxins and can cause enteritis.

Therefore, intestinal propagation of *bifidobacteria* is not only important for preventing bacterial diseases such as *E. coli* scours in infants but for improving the health of adults, particularly the elderly (Bengmark, 1998). Acetic and lactic acids produced from catabolism of carbon sources lower intestinal pH inhibiting unfavorable bacteria such as *Escherichia coli* and *Clostridium perfringens* that produce toxins and can cause enteritis. Therefore, intestinal propagation of *bifidobacteria* is not only important for preventing bacterial diseases such as *E. coli* scours in infants but for improving the health of adults, particularly the elderly.

In the present study analysis of stool samples of elderly participants for identification of bacterial species showed the presence of *B. bifidum*, *B. adolescentis*, *B. longum*, *B. brevis*, *L. acidophilus*, *L. casei*, *L. bulgaricus* and *L. leishmanii*. These bacterial species have been widely administered in individuals with various health conditions, and have shown positive effects (Hilton, *et al.*, 1991; Xio JZ, *et al.*, 2003). Gavini *et al.*, (2001) determined the differences within the bifidobacteria and enterobacteria moieties of the fecal microbiota of children, young adults, and the older adults. *E. coli* was present in 93 per cent of fecal samples and its occurrence was independent of age. In a study by Bartosch *et al.*, (2005), detected in fecal samples obtained from all participants receiving the probiotic, with significant increases in the number of copies of the 16S rRNA genes of *B. bifidum*, *B. lactis*, and total bifidobacteria, compared to the control. In this study, the probiotic was shown to modify the composition of intestinal bifidobacterial populations in the healthy older adults volunteers, demonstrating that it has potential to be of particular benefit to individuals with more unbalanced gut ecosystems.

Diseases of the gastrointestinal tract are a common cause of mortality and morbidity and alterations in the microflora at the gastrointestinal sites may be partially or wholly responsible for the development of disease (John, L. 1996). In the present study supplementation of diets with Probiotic curd resulted in 60 per cent reduction in subjects experiencing gastrointestinal problems. Hence, the oral administration of probiotic therapies may be beneficial in a

multitude of disorders both inside and outside the GI tract. (Parvez, *et al.*, 2000).

Constipation is an ailment encountered mostly in elderly people. Many factors contribute to the development of constipation with aging, such as changes in diet and fluid intake, decline in the consumption of fibre-containing products, intake of drugs or laxatives, decrease in intestinal motility, and physical inactivity. The present study revealed that there was a 30 per cent reduction in the elderly subjects reporting constipation during and after supplementation of Probiotic curd. Fermentation of carbohydrates has been shown to stimulate gut motility. The mechanism works via stimulation of microbial growth, increase in bacterial cell mass, and thus stimulation of peristalsis by the increased bowel content (Cummings, *et al.*, 1992). In the present study probiotic curd might have resulted in further increasing the bacterial cell mass in the gut, leading to increased peristalsis and reduction in occurrence of constipation.

Acidity and flatulence reduced 15 per cent in elderly subjects after supplementation of Probiotic curd. Reduction in bloating, flatulence and pain in irritable bowel syndrome with alterations in gut microflora was also reported by Nobaek *et al.*, (2000) in a controlled trial. Consumption of excess of fried foods (especially pakodas and chivdas which were commonly given in the institution) could be a reason for causing indigestion resulting in acidity. The subjects under study reported a reduction in consumption of high fat foods/fried foods during the supplementation period, which might have lead to reduced occurrence of acidity.

The elderly suffer from conditions, which are in the domain of psychology and psycho-sociology. Diminution of sexual activity, reduction in living standards due to retirement and social mal-adjustment, are some of the major causes.

When the psychosocial aspect of institutionalized elderly subjects was studied it was found that 35 per cent of the subjects were suffering from moderate to severe depression. In an institution one lacks personal control over many events, which leads to feeling of helplessness. They therefore experience more health and psychological

problems. After supplementation more number of subjects (15%) came under the normal category from severe and moderate depression levels. The present study also revealed a reduction in stress levels, sleep disturbances, lack of interest and low mood as experienced by elderly subjects after the intervention period. Though curd supplementation might not have a direct impact on their depression levels, it could be attributed to the fact that the investigators regularly interacted with the elderly subjects in their idle hours throughout the intervention period and making them conscious of their well being. Daily conversations with the subjects made them share their past lives with the investigators, thereby relieving them from their stress levels to a certain extent. Findings from reviews confirm that depressed clients benefit substantially from psychotherapy, and these gains appear comparable to those observed with pharmacotherapy. (Robinson, *et al.*, 1990).

Conclusion

Regular consumption of 100 g of probiotic curd by the elderly participants for a period of 6 weeks in daily diet with moderately raised blood lipids significantly reduces FBS and total cholesterol. The colonization of beneficial bacteria (*Bifidobacterium* and *Lactic acid bacteria*) improved significantly in the experimental group with a reduction of pathogenic bacteria i.e. *E. coli* in the gut.

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Edentulousness in Relation to Self-perceived General Health and Oral Health Among Institutionalized Elderly Population in Nellore City, Andhra Pradesh

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ABSTRACT

The purpose of this study was to assess edentulousness and its association with perceived general health and oral health status among institutionalized elderly population. A total of 101 elderly subjects were included from their respective institution with specified criteria. The mean age of participants (Male N=41.8% female N=58.2%) was 69.74 yrs. Self-perceived General health and oral health was assessed using SF-12V2 and GOHAI respectively. Edentulousness was recorded according to WHO criteria (1997). Statistical significance was estimated by performing Pearson correlation and logistic regression. It was found that the GOHAI score was 48.24 (SD 5.926). The mean PCS of SF-12 was 42.35 (SD 9.291) and MCS mean score was 47.713 (SD 11.064). The proportion of complete edentulousness was 31.6%. Significant negative correlation was found between edentulousness and SF-12. The factors significantly associated with edentulousness were; MCS of SF-12 [Odds Ratio (OR = 43.682)], GOHAI (OR=0.025). On the basis of the present findings it may be concluded that the edentulousness was inversely proportional to oral health as

well as general health. Poor oral health and loss of teeth not only affect nutritional status, phonetics and esthetics but also compromise general health.

Key Words: Elderly, Edentulousness, SF-12 Health survey, GOHAI.

With the advances in fields of medicine and Public health, life expectancy has prolonged throughout the world. Globally, the proportion of elderly population increased and will continue to rise. It is expected that an increase in the population of people aged 60 years or above will account for more than half of the total growth of the world population. India, a developing nation has around 100 million elderly at present and the number is expected to increase to 323 million constituting 20 per cent of the total population by 2050, posing greatest challenge to provide affordable, accessible, and equitable health care to this population (U.N Population Division 2011).

Old age is associated with a plethora of health problems such as arthritis, hypertension, cataract, diabetes mellitus, coronary heart disease, and oral diseases that increase dramatically with age; Edentulousness is one major old age problem that reduces chewing performance, constrained food choice, weight loss, impaired communication, low self-esteem and Quality of life (Martion-Zulanga *et al.*, 2012). Throughout the world, losing teeth is still seen by many people as a natural consequence of aging. It is a terminal event in the life of a tooth and is a frequent episode in individuals with uncared and neglected oral cavity and reflects the attitudes of the patients, the dentists in a society, the availability and accessibility of dental care as well as the prevailing philosophies of care (Nadgere *et al.*, 210).

Edentulousness diminishes the quality of life often substantially and is also related to poor general health. The relationship between edentulousness and general health appears to be multidimensional and complex, involving many pathways (Locker, 1996). As the number of teeth reduce, patient shifts from a well-balanced diet to softer and high carbohydrate diet, resulting in poor quality of life. Increased life expectancy without enhanced quality of life has a direct impact on public

health expenditures and is becoming a key public health issue. It will also be of major concern to developing countries and countries with high population densities and emerging economies, such as India (Peterson, 2011).

Self-perceptions of health status, as measured by general and oral health, have been shown to be independent predictors of health. Self-rated health is also a strong predictor of mortality and functional ability (Borrell and Baquero, 2011). Perceived need reflects subjective well-being in functional, social, and psychological dimensions (Piuvezam, *et al.*, 2006. Oral health related quality of life indicators provide information on perceived need for oral health care. Recent literature strongly emphasizes the importance of patient's feelings and their relation to professional assessments. The role of subjective perceptions and perceived needs is an essential part of any health issue.

Tooth loss especially, complete loss or edentulism, is equivalent to the dental death. Tooth loss often substantially reduces the quality of life (Slade, 1994). Poor dentition, especially edentulousness, has been associated with deterioration in the systemic health and higher mortality among the elderly. There exists a lacuna in published literature correlating edentulousness to perceived general health and oral health among the elderly population. Thus the present study was aimed to assess the Edentulousness and its relation to perceived general health and oral health among institutionalized elderly population in Nellore district, Andhra Pradesh.

Methods

A cross sectional study was conducted in old age institutions in Nellore city of Andhra Pradesh, India. Ethical clearance was obtained from institutional review board of Narayana dental college & Hospital. Permissions from the respective old age home authorities were sought and informed consent was obtained from all the participants belonging to the institutions and study was conducted during period of July - August 2012. All willing participants residing in old age homes for a period of at least one year were approached. Subjects who were bed ridden and mentally challenged were excluded from the sample.

The Study Instrument

A detailed self-administered questionnaire was prepared in order to collect information related to age, education levels, financial status, general health and oral health status. General health was assessed using SF-12 health survey questionnaire developed by Gandek B and Ware JE (1998). that includes Physical Component Scale (PCS) to assess physical health status and Mental Component Scale (MCS) to assess mental health status. Perceived Oral health was assessed using General Oral Health Assessment Index (GOHAI) developed by Atchison and Dolan (1990) that measures the self-reported oral impairment. This was followed by Clinical oral examination to record the state of Edentulousness as per the WHO criteria. (WHO, 1977).

The questionnaire was translated to local language (Telugu) and tested for cross cultural sensitivity. The questionnaire was pilot tested among 32 subjects. Cronbach's alpha of the translated GOHAI subscales and SF-12 subscales were calculated and found to be ranging from 0.79 to 0.85 and 0.80 to 0.84, respectively. The survey was systematically scheduled to cover all the institutes in Nellore city according to the convenience of the institutional authorities. The examinations were carried out by the investigator himself and recordings were done with help of an assistant recorder with in the premises of the institution.

Statistical Analysis

Statistical analysis was performed using SPSS 16.0 version. Basic descriptive statistical measures like mean, standard deviation and percentages were calculated. Statistical significance was estimated by performing Pearson correlation and logistic regression analysis.

Results

A total of 101 institutionalized elderly subjects were approached, 91 of them agreed to participate in the study accounting to response rate of 90 per cent. Majority of participants' (39.56%) belonged to 66-75year and the least representation of subjects (6.5 9 %) were from 86-95yr age group and mean age was 69.7years $\pm$ 1.58 ranging from 56 - 95years. There was a marginally higher representation of females (58.2%). Among the subjects, 86.81 per cent received financial

assistance from their families. Primary level education was attained by 67.03 per cent of the subjects (Table 1).

SF-12 scores revealed a mean PCS of 42.35 ± 9.29 and MCS of 47.71 ± 11.064 . The mean GOHAI score of the sample was 48.24 ± 5.92 .

Prevalence of edentulousness of varying degrees was 100 per cent and 31.6 per cent of subjects were completely edentulous. Further analysis to estimate the severity of edentulousness in relation to SF-12 and GOHAI using multiple logistic regression analysis, revealed a statistically significant relation between edentulousness and GOHAI [OR= 0.025] and also found significant relation with MCS of SF-12 [OR= 43.682] (Table 2).

Edentulousness was found to be in negative correlation with PCS, MCS and GOHAI scores, indicating that oral and general health status worsened with increased rate of edentulousness (Figure 1). Among the three components analyzed significant negative correlation was observed between edentulousness and MCS (Table 3). Analysis showed a significant positive correlation between GOHAI and MCS values (Table 4, Figure 2)

Table 1
Socio-demographic Characteristics of Study Subjects

<i>Characteristic</i>	<i>Category</i>	<i>Percentage of Respondents (%)</i>
Age group	56-65years	34.09
	66-75years	39.56
	76-85years	23.08
	86-95years	3.30
Gender	Male	41.76
	Female	58.24
Education	Illiterate	1.10
	Primary level	67.03
	Secondary level	29.67
	Tertiary level	2.20
Financial assistance	Yes	86.81
	No	13.19

Table 2
Severity of Edentulousness of the Study Subjects Regressed with PCS, MCS and GOHAI Scores

<i>Factors</i>	<i>Wald</i>	<i>OR(CI)</i>	<i>p-value</i>
PCS			
<i>Good (Ref)</i>			
Poor	0.8430	3.26(0.26–40.6)	0.35
Fair	0.1710	1.65(0.15–17.93)	0.68
Moderate	0.1760	1.44(0.26–7.91)	0.67
MCS			
<i>Good (Ref)</i>			
Poor	0.0090	1.14(0.06–20.3)	0.92
Fair	6.6190	43.68(2.45–776.1)	0.01*
Moderate	2.6020	8.76(0.62–122.3)	0.10
GOHAI			
<i>Good (Ref)</i>			
Poor	3.6350	0.02(0.00–1.10)	0.05*
Moderate	1.9530	0.07(0.00–2.86)	0.16

*p < 0.05; Ref = Reference category.

Table 3
Correlation of Edentulousness with GOHAI, PCS and MCS

	<i>Correlation coefficient</i>	<i>t-value</i>	<i>p-value</i>
GOHAI	–0.095	–0.8264	0.4112
PCS	–0.0785	–0.6823	0.4972
MCS	–0.2345	–2.0089	0.0401*

*p < 0.05.

Table 4
Correlation between PCS, MCS and GOHAI Scores

	<i>PCS</i>	<i>MCS</i>	<i>GOHAI</i>
PCS	1.0000		
MCS	0.0405	1.0000	
GOHAI	0.1542	0.4262*	1.0000

*p < 0.05.

Figure 1
Correlation Between Edentulousness and MCS Scores

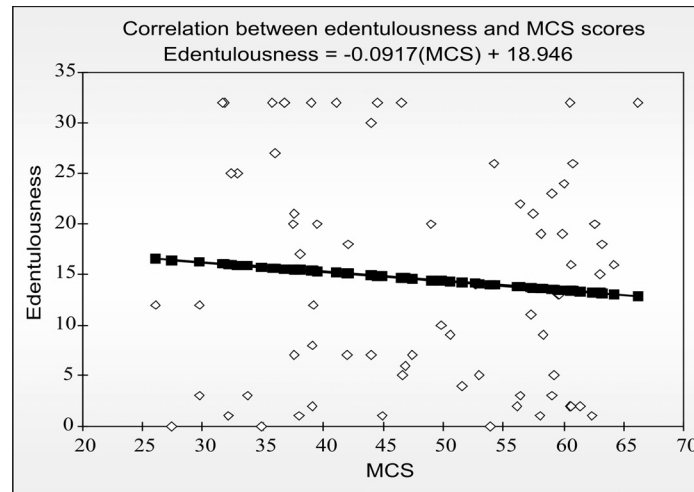
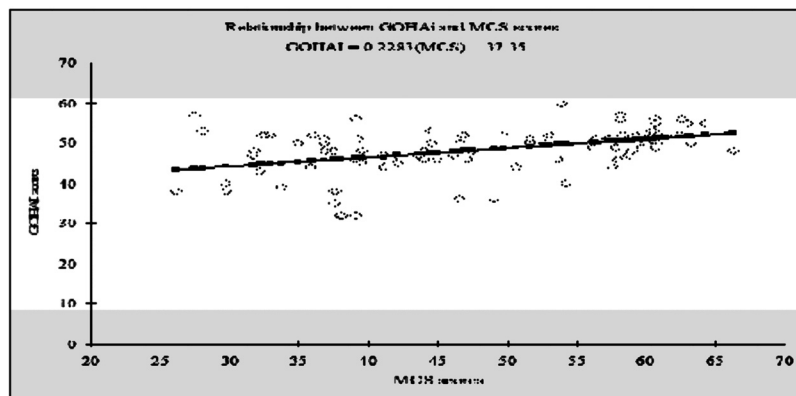


Figure 2
Correlation between GOHAI and MCS of SF-12



Discussion

Aging is a highly variable process, affected by numerous factors including genetic predisposition, diseases and environmental factors. Many of the infections and disease related states are polarized around the two extremes of life, the childhood and the old age making them

the most vulnerable population. Aging directly affects the quality of life of an individual. With increasing age, the risk of loss of healthy life years is increased owing to lowered host resistance, poor nutritional status resulting in poor health which in turn affects oral health and vice versa.

The most commonly encountered change in the oral cavity with the increasing age is loss of teeth owing to multiple factors like dental caries and periodontal disease. Edentulousness seriously impairs quality of life of an individual and affects various aspects of life including function, appearance and interpersonal relationship (Deli Roerto, 2009). Studies assessing both the medical and oral health of older adults are not common. Edentulous status in older populations has often been used as a surrogate or proxy measure of dental status (Ozkan and Ozcan, 2011). This study assessed the prevalence of edentulousness, and its effect on general as well as oral health in old age homes of Nellore city. The study being the first of its kind among the concerned population provides baseline data for further analysis.

The study setting, Nellore city is recently being urbanized and prevailing culture typically reflects the Indian scenario. It is firmly believed that parents are an inseparable part of family and institutionalization of persons at their older age is not appreciated by norms of society. This may be the main underlying reason for the sample size representation. The study population is diverse in terms of age, gender and socioeconomic status. The prevalence of edentulousness with varying degree was 100 per cent and prevalence of complete edentulousness was 31.86 per cent which was higher than National (29.5%), and regional (21.3%) (Govt. of India, 2002–2003) and was found to be similar to findings of study conducted at New Delhi where complete edentulousness ranged from 19–32 per cent (Shah, *et al.*, 2004).

Edentulousness was most common among female elderly; similar to the reported findings of institutionalized elderly people living in Bangalore city (Imran 2011). However, the level of edentulousness in the 75yr group in the present study was slightly lower, i.e. 26.6 per cent versus 32.3 per cent among elderly subjects of Chennai, (Thomas, *et al.*, 1994). The strength of our study was the inclusion of a general QOL measure, the SF-12, as well as a specific OHRQOL (GOHAI)

measure. In the present study majority of respondents, male and female perceived their general health as fair but oral health as poor. In the present study, the mean PCS score $[42.35 \pm 9.29]$ was similar to study conducted among South Australian population of same age conducted by Marino R (2008).

Multiple logistic regression analysis with edentulousness being the dependent variable revealed that edentulousness as a significant risk indicator for general and oral health problems among the subjects. The results revealed a significant relation between MCS and edentulousness. However, the findings have to be interpreted with caution as the study population was institutionalized elderly and the surroundings have a great impact on their mental status. The subjects are under psychological stress owing to loneliness and being separated from their families. Therefore, more emphasis should be given to the mental wellbeing than the physical health state by the subjects and this finding can be attributed to the fragile nature of the thoughts and emotions among the older population. Edentulousness obviously was related to deterioration in general health, in particular a reduction in physical, psychological and social capability, as well as chewing disorders and increasing disability as proposed by Tramini Paul (2007).

Negative correlation was observed between edentulousness and GOHAI scores, indicating that, oral health deteriorates as edentulousness increases. Positive correlation between the GOHAI and PCS, MCS of SF-12 revealed a direct relationship between oral health and general health and was in concurrence to the study conducted in Germany by Zimmer (2010). It indicates as oral health declines, there is deterioration in general health or vice versa, thus strengthening the fact that oral health is an integral part of general health. A life-course approach to the study of change in the oral health status and general health across aged populations requires longitudinally designed studies.

Conclusion

Poor oral health and loss of teeth not only affect the dietary intake, nutritional status and phonetics but also compromise the general health. The present study highlights significant impact of

edentulousness on general as well as oral health thus substantiating it as an important public health concern.

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Models of Social and Health Care for Elderly in Norway

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ABSTRACT

Health and social care systems in Norway have been able to provide range of prevention, primary care, management of chronic diseases, geriatric care, and more formal long-term care to a prodigious extent to its elderly, and are constantly up-scaling. Norway spends more per capita on caring for its elderly than any other country in developed or developing nations. It also presents an ideal case of Public provision of health and social care to its population in general and elderly in particular. The services provided to the elderly are designed and provisioned based on elderly needs and their social context, so various models of care are available to cater to a variety of elderly needs. This paper presents the organisation and provision of health and social care to the older people at various levels with a focus on Nursing home care in Norway. It also attempts to discuss various models of community based care for older people existent in Norway which can help in designing care for older people in developing countries where proportion of older people is growing at a much rapid pace.

Key Words: Healthcare for elderly, Long-term care, Nursing Homes for elderly, Norway.

As the mortality and fertility rates decline, the life expectancy increases, consequently, the proportion of elderly increase. This

phenomenon has brought a revolutionary transition in demography in twenty-first century around the globe. In Norway, the average life expectancy at birth is around 80 years and the proportion of elderly in the population is increasing. In 2011, a total of 742 000 people, or 15 per cent of inhabitants, were 65 years and older and approximately 221 000 people or 4.5 per cent of the population, are 80 years or older. According to Statistics Norway's projections, the number of people over 65 years will be around twice as high as today by 2100 and the proportion of 80 years and older will increase from 4.5 to 11.7 per cent and from 221000 to 904000 people. Health and social care systems in Norway have been able to provide range of prevention, primary care, management of chronic diseases, geriatric care, and more formal long-term care to a great extent to its elderly, and are constantly up-scaling.

Norway spends more per capita on caring for its elderly than any other country in developed or developing nations. Nearly 10 per cent of the annual budget goes towards provision of facilities and services to fulfil the government's guarantee to its citizens that everyone will have a cost free private apartment post retirement in addition to the assistance and care that they might need. As the largest service sector, care for the elderly amounts to more than a quarter of the total municipal budget and is nearly 3 per cent of its GDP.

Norway presents an ideal case of Public provision of health and social care to its population in general and elderly in particular. This paper presents the organisation and provision of health and social care to the older people at various levels with a focus on Nursing home care in Norway. It also attempts to discuss various models of community based care for older people existent in Norway which can help in designing care for older people in developing countries where proportion of older people is growing at a much rapid pace.

A qualitative study was conducted in Trondheim, Norway to study the organisation and provision of care for the elderly. In-depth interviews were conducted with the providers of care at various levels. Municipal Corporation (*Kommune*) was approached to understand the organisation of care for elderly and identify institutions that can be studied to capture a variety of care models. Advisors on elderly care at the municipal level, Administrators at nursing homes, Nursing Staff

that render care to the institutionalised elderly and home care staff were interviewed to get an in-depth understanding about the levels and models of care available to the elderly with different care needs.

Organisation of Healthcare in Norway

The health administration in Norway can be divided into three parts; the National, Provincial (or regional) and local (Municipal) levels. At the National level, the *Ministry of Health and Care Services* formulates and implements the national health policy with the help of several subordinate institutions.

Norwegian Directorate of Health is a specialized agency under the Norwegian Ministry of Health and Care Services.

The *Norwegian Board of Health* is an independent authority responsible for the general supervision of the health services of the country.

The *Norwegian Institute of Public Health* (NIPH) is the main source of medical information and advice. NIPH bears the responsibility for ensuring good utilisation, high quality and easy access to the data in the registers (total seven but only six under its preview), as well as assuring that health information is treated in accordance with privacy protection rules.

At *Province level*, the provincial authorities represented by the county council do not deal with health matters. At *local/municipal level*, local authorities provide a wide variety of primary health care services to the community. The primary health services were established through the Norwegian primary health services act, 1982. This act provides guidelines to coordinate the health and social services at the local level, strengthen these services in relation to institutional care, improve resource utilization, strengthen preventive care, and lay the foundation for better allocation of health care personnel.

The Norwegian healthcare system is organized in two parts: primary care and long term care (scope of *Kommune*) at one end and hospitals and specialist care (scope of centre) at the other. Recently, there has been a focus to improve the coordination between these two parts which is marked by the reform called "The Coordination Reform" in 2012. Enhancing the coordination between the primary

and secondary levels of care has been the focus in the last decade and it has been formalised by the key term “The Coordination reform”. This reform is accompanied with various strategy and regulative initiatives like the new Health legislation, structural reforms as well as economic incentives, that are about to be implemented (Norway and Health, 2009).

<i>Profile of Population and Elderly care Users in Norway</i>	
population of Norway	4.6 million
Elderly 67 yrs and above in Norway (2010, Statistics Norway)	625000
Elderly 65 yrs and above in 2011	742000 (15% of total inhabitants)
Elderly 80 yrs and above in 2011 in Norway	221000 (4.5% of total inhabitants)
Elderly currently using care services	200000
Residents in nursing homes	44000
Elderly receiving care at home (home care services\ community care housing)	160000
Proportion of 80+ living in institutions (currently)	15%

As of 2009, over 44,000 Norwegian citizens lived in nursing homes. Nearly 73 per cent of them were 80 years and older. Most residents have advanced chronic illnesses and multiple diagnoses with as many as 80 per cent of these individuals suffering from dementia.

Health and Social Care for Seniors in Norway

The health care provision in Norway is based on a decentralised model. The municipalities (primary health care) are responsible for home care services, nursing homes for older or disabled people, community hospitals, family physicians, health services for mothers, children and youth, midwives, physiotherapists, occupational therapists and emergency services. The government (secondary health care) owns and runs district general hospitals, university hospitals and ambulance services through regional health authorities.²

Elderly care at the primary level, is usually distinguished between *home based care* and *nursing homes*. Uses of home-based care receive services are either in their own homes or in specially adapted dwellings. Municipalities decide the level and type of care for each user

based on their assessment and request from the seniors or their relatives.

The municipalities operate nursing homes and provide home based care and also determine the type of service and amount of care for individual users. Private alternatives are few, and most private providers operate on contract for municipalities. The municipalities are multi-purpose authorities, and the care for the elderly sector 'competes' with other sectors over the municipal budget.

Municipality basically executes the Plans designed by the National Health system. It is the municipalities' role to translate that to action, build houses, day care centres etc. for the seniors.

Elderly Care in Trondheim – Organisation and Provision

This study was conducted in a municipality of Trondheim, a Sør-Trøndelag County, with a population of 179,123. It is the third most populous municipality in Norway, although the fourth largest urban area. Almost 18000 inhabitants in Trondheim are 67 years and above. There are about 5000 employees in the primary health care in Trondheim. The elderly care services are provided by the local bodies which are organised to provide various levels of care based on the requirement of the elderly. These levels of care are discussed below.

Home visit: Municipal healthcare workers visit all people 80 years and above to educate them about promotive health behaviours and coping mechanisms. These are called Preventive home visits. The health workers also enquire and assess about any special care needed by the elderly during these visits. If the elderly need assistance in activities of daily living then the same is communicated to the next level i.e. Home care system.

Home care system: This system helps the elderly in activities of daily living like personnel care, get washed, wound cleaning etc. This level of care is basically for those elderly who need some minimal help everyday however, they can take care of themselves during the day. It is also called home assistance and home nursing or home related care.

Day Care system: In case the seniors need more care than just punctual visits of home care, but they need help in preparing meals, dressings, social activities etc. then there is the next level of care called

day care services. Kommune arranges busses for pickup as well as drop back between homes and day care centres, free of cost.

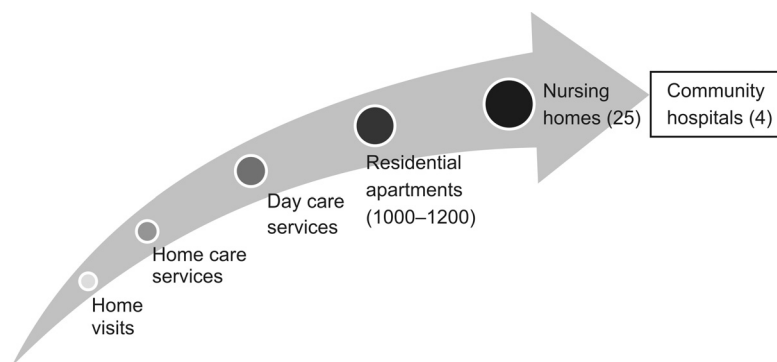
Residential apartments: There are specially constructed apartments considering special needs of elderly, who are frail or seniors having mental health issues like dementia. Specially adapted buildings to render care for the elderly has advantages of offering greater flexibility in respect to the amount of care individuals can receive. The level of care varies from a level similar to private homes to round the clock care as in institutions. There are three models in provision of elderly care based on the level and duration of services available in these apartments. The elderly are allocated these apartments based on their care needs and level of dependence.

Model 1: A permanent number of staff assists residents at all hours. Staff has a staff room in the building are connected with the residents with cordless as well as mobile phones. This model is mostly used with residents suffering from senile dementia or learning disabilities. e.g. *Trondhjem* hospital provides residential apartments of this kind.

Model 2: Staff is permanent during the day and residents are serviced by home care services in the municipality at night. During the day the residents can connect with staff using cordless devices while at night they are connected with mobile phones. This model is used where the residents are more independent than in the first model.

Model 3: in this model the residents are serviced by the *ambulant home care services* in the municipality at all hours. The staff will have no base in the building; however they will be available via mobile phones.

Nursing Homes: Nursing homes have existed in Norway in various forms for over a hundred years as a part of public health system and have evolved over the past half-century from being places of custodial care to facilities responsible for the management of an increasing range of complex nursing and medical conditions. A nursing home is a collective living place for older people who do not require hospital service but cannot be cared adequately and safely at home. The nursing homes perform several functions like providing housing, household and health care to the elderly who are frail, cannot



stay alone any more, and are very dependent. They can stay there and live there till they die. The nursing home provides medical and nursing care for long-term and short-term residents, as well as rehabilitation. Nursing homes have nurses on hand 24 hours a day. To meet the social and healthcare needs of the residents, nursing home has a variety of staff that includes health professionals such as registered nurses (RN) and certified practical nurses, and an employed physician besides volunteers for conducting social activities. There is a legal requirement that the nursing department is managed by RNs. Social care is the priority and medical care is like one part of care at the nursing home. There are around 25 Nursing homes in Trondheim (including 3 not for profit).

Community Hospitals/Short time stay hospitals: Community hospitals are like an interface between primary care services rendered by municipality and specialist care rendered by the central government. The main objective of this care is to provide special care after the elderly is discharged from the hospitals (specialist care\ national hospital) but without any need for further advanced hospital care, before they are shifted back to their home. It is basically an assessment point when it is assessed if the senior can be transferred to home or they need to be shifted to nursing home and the extent of care needed by the senior is assessed.

The Community hospitals also provide Respite care i.e. help in provision of care to elderly to prevent burn out to the care giver for a few days. For example: in case the care giver is burdened with the care of senior and needs rest for a few days to improve their own health, community hospitals help in provision of care to senior and release

pressure from care giver which consequently helps to improve the health of the care giver. Various other services provided at this level are as follows:

- (a) Recover for an illness, special rehabilitation
- (b) help care givers to rest
- (c) Palliative care for cancer patients
- (d) Provision of care to terminally ill patients so that they can make space for other elderly needing special care.

Community hospitals are like an interface between the national health system and municipalities. There are services like physiotherapy, psychiatric care, nursing care, Palliative care, etc. Though the administration of care in the community hospitals rests on the *kommune* which is responsible to take care of the cost of care and resources need at community hospitals, there are provisions for negotiation with the centre for a few special cares like, patients on palliative care like cancer patients, when it is known that if the patient is kept at the national hospital the cost of care will be more and the same service can be of help to another patient, then the national hospitals shift the patient to community hospitals and share the cost of treatment for such patients. So there is a mutual understanding between commune and centre for such cases. There are *four community hospitals* in Trondheim.

Care in Nursing Homes

This section describes the processes and activities undertaken by the nursing home to provide efficient care to the residents. An attempt has been made to provide an overview of the systems followed at the nursing home to help a new resident in smooth transition from home to nursing home.

Services Provided to Residents

On the arrival of a new resident, the staff tries to understand the health conditions of the elderly, as well as map the activities that the resident enjoys by engages in conversation with the resident as well as their relatives. Besides this, the staff at the nursing home also lays down certain rules for the family and the relatives about the scope of services of nursing home and responsibilities of relatives of the resident. The staff gives adequate time to the resident to adapt to the

new environment and social context. Meanwhile, the staff at the nursing home tries to engage the resident in various activities of their interest to help them acclimatise in the new social context. They also encourage residents to develop relationship with the staff as well as the other residents at the nursing home.

An important aspect on arrival of a new resident at the nursing home is to assign *a primary contact for each resident*. This primary contact is the one point contact between the nursing home and the relatives as well as resident. This person is responsible for all the information flow between the nursing home and relatives of the resident. The primary contact keeps the relatives updated about the new developments about the resident at the nursing home. She is also responsible to develop an activity plan for this resident based on the map developed at the arrival of resident.

Autonomy: The residents get opportunities for *independent decision-making* at the nursing home as they can decide when to call their relatives and friends. There are no fixed visiting hours as in hospitals. So it's a long term care centre which tries to provide them an environment close to family setup.

Food: the food provided at the nursing home is prepared at a central kitchen of the municipality that ensures adequate nutrition, variety as well as balanced diet for the seniors. The resident can choose their meals from the menu provided by the nursing home. The nursing home receives a menu for 4 week with option in each meal from the central kitchen. The nursing home provides a choice in what the resident will eat, where they will eat (in their rooms or living room in dining area). In addition, they can choose the timing when they want to eat but usually the residents are encouraged to eat at scheduled timings as it is good for their health.

Involvement of volunteer groups: the *Kommune* encourages services of volunteers at the nursing homes to provide social care to elderly. Volunteers spend time with elderly, help them in shopping for personal consumables, take them to open areas and help them visit places elderly would like to visit. Some volunteer groups organise music and dance classes for elderly who would enjoy to sing and dance. This improves their movement and helps them adapt to nursing homes better. Occasionally church organises prayers at the nursing homes to cater to the spiritual needs of frail elderly. Services like visits

of children studying at kindergarten to nursing home to engage in activities with the residents in nursing homes, activities of the church etc. help to provide a feeling of family amongst residents at nursing homes.

Privacy: of each resident is given prime importance as each resident has his/her own room with attached toilet and television. Besides due care is taken by the staff to maintain privacy about the health and other personal information about the residents.

Maintaining Standard of Care in Nursing Home

Financial Aspects: As most of the nursing homes in Norway are public-owned and a very few not-for-profit and private-owned (under contract with municipalities), the cost of care is borne by the municipality. As all the seniors in Norway receive some or the other form of pension (irrespective of employment they have had), the pension of the residents at nursing homes are collected by the municipality in lieu of care provided. It is worth mentioning that the standard of care provided to the residents is irrespective of the resident's pension, and depends on their need of care. Hence, the health and social care is equitably distributed.

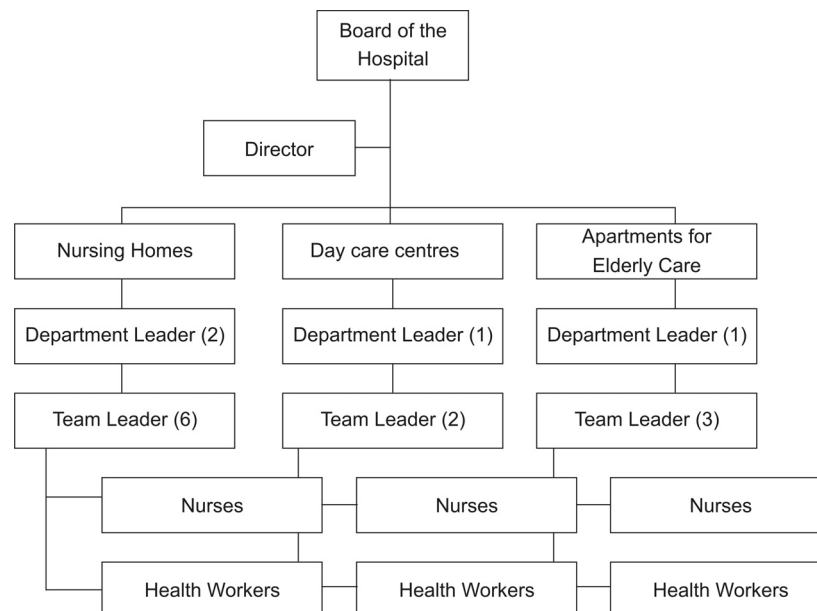
Monitoring and teamwork: The staff at the nursing home works in teams and each team is headed by a team leader to ensure accountability. Each department (level) has their department leader and the team leaders report to the department leaders. The department leaders report to the director of the nursing home. They meet twice a year to discuss the challenges faced, solutions to the issues, budgeting for the forthcoming year, provision of new services etc. Besides these activities, all the details about the activities of each employ are updated on computer systems and the team leader at each level can monitor the completion of tasks of employees through these systems. It is mandatory for each employee to update the system about tasks completed and review the new assigned tasks.

Coordination of Care

- *Case history taking:* it is the responsibility of the nursing staff to take the case history of each resident and prepare a care plan for the resident and revise it based on new developments in health of the resident.

- *Care plan:* Each resident has a clear care plan which details each activity from medication, nutrition as well as day activity for each resident. This plan also has details of the investigation reports of this resident. Every health worker as well as the nursing staff need to update the status of each activity for the resident based on the completed tasks. This plan helps in keeping a close supervision on the adherence to the planned care for the resident. And it also acts as an evidence of quality of care.
- *End of shift report:* this report is usually provided orally by the nurse reliving duty to the nurse joining duty. Besides this report each nurse has to browse the notes and care plan for each resident to plan health workers tasks and her own daily activities.
- *Consultation:* on occasions when the nurse feels that the residents need any consultations with the doctors for any acute care, the same is provided by the doctors at the municipality (acute care) at St. Olav's hospital. These consultations are in addition to routine

Figure Representing Organisational Setup for Monitoring in a Nursing Home



weekly visits by the medical doctors at the nursing homes when all the residents are medically examined to assess their well-being.

The reporting is so robust that it removes dependence on staff and is totally self-sufficient even in absence of any employee.

Capacity Building of Health Personnel's at Nursing Homes

- *Periodic workshops and trainings:* The nursing staffs are sent for small workshops to refresh their knowledge on various subjects like acute care, pain management, palliative care etc. these opportunities help the nursing staff to improve their decision-making and improve their skills in treating the residents at the nursing home.
- *Funds for higher studies of nurses:* there are some funds which are kept to help the nursing staff to undertake higher studies and advance courses in geriatric care, palliative care, and various other domains. The staff has to initiate the process for enrolling to such courses. The hospital supports the staff with funds as well as providing the staff with paid leave to attend school one week every month. Such courses have flexibility in mode of attending school where working nurses can attend school weekly and complete one module at a time and complete one year course (regular) in a span of two years (while working). This helps the staff as well as the hospital in skill enhancement and improved quality of care provision.

Monitoring the Quality of Care at Nursing Homes

At national level *the Norwegian Board of Health Supervision* is supervisory body responsible for inspections and monitoring in Norwegian nursing homes. The supervision aims to assess whether the users' needs are met and whether the services that are provided meet the requirements laid. The Norwegian Board of Health Supervision is a national public institution organized under the Ministry of Health and Care Services. The politically adopted acts and regulations provide the framework for the services that shall be supervised.

System audits are used to supervise services (municipalities, children's and youth homes, nursing homes, hospitals etc.). The quality of care in nursing homes is investigated by a comprehensive audit involving, examination of documents, carrying out resident and

employee interviews, reviewing the organizational setup and processes and carrying out sample tests.

The report of the supervision includes a description of conditions or factors that are not in accordance with acts and regulations. These deficiencies are called nonconformities. The supervision authority follows up nonconformities until the requirements laid down in acts and regulations are met. Follow-up involves the management of the organization, and if necessary the owner (the municipality, the board of directors etc.). Between 700 and 900 system audits of activities are carried out each year. Supervision reports are available to the public, and are frequently viewed by users.

Challenges Faced by Elderly Care Sector

One of the most significant challenges faced is the increasing costs in provision of social and health care to elderly. Estimates from the pension commission show that the retirements as a percentage of GDP would increase to 12 per cent in 2050 from 4.5 per cent of GDP in 2000, with pension commission's proposal of modernized national insurance. In projections regarding costs in nursing and care sector proposed by Statistics Norway suggests that these costs would increase from 3.1 per cent of GDP in 2005 to 6.1 per cent by 2050, provided that the period of reduced capacity at the end of person's life remains same and is delayed to the degree life. Besides rising costs, shortage in workforce in elderly care poses a challenge as few young people are interested in being health workers or joining nursing care. The reason is that elderly care jobs are relatively less paid and have shift duties which are not attractive work options. The young population is attracted towards jobs that require less effort and are relatively higher paying as well as better reputation.

In addition to the cost and supply of human resource in elderly care, there is a rising demand for care due to increase in age related diseases. All these challenges have been well anticipated by the government of Norway and they are determined to find solutions to overcome them.

Conclusion

Norway presents an ideal case of public provision of universal health and social care to its older population. The organization of care

for elderly at the municipal level is quiet robust and have inbuilt processes for monitoring of the provision of care. All the services are provided on accordance to the acts and regulations of the country. There is a well laid plan to improve the services for the elderly. However it is essential to mention here that this system has also been facing challenges of rising cost of care, reduced supply of human resource for elderly care, increasing age related diseases due to increased life expectancy at birth and increase in older population. These challenges have laid increased pressure on health and social services and the government is trying to find solutions maintain the efficiency of the system. In addition to elderly care availability, there is a demand to improve the environment of nursing homes by adding human touch to the services, and improving the behaviours of staff, and encouraging volunteer groups to spend time with residents. The government of Norway is trying to evolve ways to improve the quality of life of its elderly by actively promoting preventive care to reduce the pressure on health care system. The models of care for elderly, discussed in this paper provide a useful resource to design care for elderly based on the social and cultural context of developing countries.

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The Emerging Scenario of Population Ageing in West Bengal: Past Trends and Future Direction

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ABSTRACT

The paper aims to present an emerging scenario of population ageing in West Bengal on the basis of past trends. It was found that the elderly population in West Bengal has been growing in a faster rate than all India average. The current trend of population ageing also reveals the fact that, in future, there will be larger proportion of elderly population in the state, with higher age and majority of them would be women for whom better social security measures would be needed. It is the need of the hour to study the ageing processes in West Bengal, so that, its implication for the elderly population in particular and society at large could be judged.

Key Words: Population Ageing, Oldest-old, Ageing Index, Dependency Ratio.

Population Ageing is a Global phenomenon. In every corner of the world, the population of elderly is increasing both in absolute term and in relative proportion due to the continuous fall of fertility coupled with increase of life expectancy. While the former reduces the adding of children to the population, the later increases the relative number of old persons in the population. At global scale, the number of 60+ population has already reached 784 million (11.5% of total

population) in 2011 and it is expected to climb 2 billion (22% of total population) by the year 2050 (UN: 2011). As for the statistics in developed countries, in 2011 the aged people constitute 31 per cent of total population in Japan, 27 per cent in Italy, 26 per cent in Germany, 25 per cent in Finland, Sweden, Bulgaria, Greece, 24 per cent in Portugal, Belgium, Croatia (Bloom *et al.*: 2011). According to the United Nations estimation, in more developed countries as a whole the elderly people constitute 22 per cent of regions' total population and by the year 2050 they will be around 32 per cent. In these parts of the planet, the elderly population has already exceeded the child population (0–14 years age group), that means, there are more aged persons than children in these societies (UN: 2011). In developing world, the senior citizens constitute 10 per cent of the total population of the region and it is predicted that in 2050 their proportionate share will be 23 per cent. This figure seems to be less significant in respect of developed countries, but it has to be remembered that in absolute term the developing world makes more contribution than developed regions to this phenomenal increase of elderly population because of its large population base. At present, the developing world shares 66 per cent of world's aged population but by the year 2050 it will increase up to 82 per cent. (ibid.) This clearly indicates that in the coming decades the developing world will dominate the entire scenario. In other words, it could be said that the developed world has already realized the quake of graying revolution and the developing countries is yet to realize it.

The situation in India is not very much different from this worldwide trend. India, too, is passing through the phase of demographic transition where the population of aged both in absolute number and in proportionate share to the country's total population is increasing day by day. The aged population in India rose from 12.06 million in 1901 to 19.61 million in 1950 and 76.62 million in 2001 (Census of India, 1991; 2001). It has been projected that by the year 2011 the 60+ population in India has crossed 100 million and in 2021 will reach 140 million (CSO: 2011), that means, it will take only twenty years (2001–2021) to be doubled the elderly population in India. In proportional term, according to 1901 census the elderly constituted 5.06 per cent to country's total population which

marginally increased to 5.43 per cent in 1951 and to 7.45 per cent in 2001 (Census of India, 1991; 2001). It is expected that their proportional share to country's total population will reach roughly 10 per cent in 2021 (CSO, 2011)). Such demographic shift has already posed a serious challenge for the government to meet the different requirements of galloping aged population.

West Bengal remains at the edge of gerontological research in India. Only a few passing references could be found, depicting the condition of the elderly in the state, which are based on very small sample size and are narrow in scope. However, the macro data about aged population of the state illustrates her important position among the states and Union Territories (UT) in India in respect of population ageing which deserves larger attention from the social gerontologists of India. It is the need of the hour to study the elderly people in India across the length and breadth of the country, so that, the cross-cultural knowledge about the ageing process and its implication for the elderly population in particular and society at large could be built up.

The ageing population in West Bengal has got relatively less priority in gerontological research in India despite the fact that she acquires forth position among all states and Union Territories (UT) in India in respect of absolute numbers of aged people (Census, 2001). Two reasons may explain this. First, in terms of proportionate share of elderly population to total population, West Bengal gets eleventh position among the bigger states (States with more than 10 million populations) and is lag behind the national rate (*ibid.*). Second, might be related with first one, the researchers from West Bengal still have not taken the initiative, to that extent as of the scholars of some other Indian states, to study the aged people in their respective state. However, the elderly population in the state of West Bengal is growing in a faster rate than all India average. It could be projected that, in near future, West Bengal would emerge as an important state in India in respect of population ageing.

From this perspective, in the present paper the author has tried to present an overall emerging picture of population ageing in West Bengal and a systematic comparison has been drawn with national trend of population ageing, so that, West Bengal's current place in

national context could be depicted and future course of development could be predicted.

Population Ageing in India and West Bengal

Table 1 reports the volume of aged population in West Bengal and India and their share to population for all age groups for the different census years from 1961 to 2001. It reveals that share of elderly population to total population in West Bengal has remained below the national average in last four decades (1961–2001). It holds true for both elderly male and female population. Population ageing from these figures appears as less significant phenomenon in West Bengal than from some other parts of India. But, it is to be reminded that in terms of absolute number of elderly persons, West Bengal is in forth position just after Uttar Pradesh, Maharashtra and Andhra Pradesh among the states and UTs in India; and among these above mentioned three states which have larger amount of aged persons than West Bengal, Uttar Pradesh placed below to West Bengal in respect of proportionate share of elderly population to total population (Census, 2001). This shows the paramount importance of West Bengal at least in terms of growth of elderly population in all India contexts.

It could be depicted from the data that elderly population in West Bengal has grown in a faster rate than all India in between the period 1961–1971 to 1991–2001. Evidently, the decadal growth of aged population for both males and females in India and for males in West Bengal has shown fluctuating rate but for aged women in West Bengal the population growth rate has increased with consistency except the decade 1971–1981. The figures also tell that in average the population of women aged both in India and West Bengal has increased more rapidly than elderly males.

In Table 2, the population ageing of West Bengal and India has been measured with some selective methods as ageing index, dependency ratio and median age with an intention to predict the future path of development of elderly population. The measurement has been drawn on the basis of 2001 census data. It could be seen from the table that ageing index for both male and female in West Bengal is higher than India that means, in comparison to India, West Bengal has larger aged population in proportion to young population (0–14years

Table 1
Aged Population and Percentage (%) Share of Aged Population to Total Population in India and West Bengal by Sex, 1961–2001

Year	Old Age Population (60+)						% of Aged Population to Total Population					
	India			West Bengal			India			West Bengal		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
1961	24,712,109	12,356,687	12,355,422	1,748,936	860,660	888,276	5.63	5.46	5.80	5.01	4.63	5.44
1971	32,699,731	16,874,325	15,825,406	2,349,446	1,179,202	1,170,244	5.97	5.94	5.99	5.30	5.03	5.61
1981	43,167,388	22,022,869	21,144,519	3,029,121	1,520,731	1,508,390	6.32	6.23	6.41	5.55	5.32	5.80
1991	56,681,640	29,363,725	27,317,915	4,115,573	2,106,701	2,008,872	6.70	6.69	6.71	6.05	5.93	6.17
2001	76,622,321	37,768,327	38,853,994	5,700,099	2,784,491	2,915,608	7.45	7.10	7.82	7.11	6.72	7.53

Source:

age group). The dependency ratio, however, suggests that the proportionate share of working population (15–59 years age group) to total population in West Bengal is higher than all India average. Besides, the median age describes that in average, people in West Bengal are older than average Indians. Therefore, it could be expected that the current higher rate of growth of aged population in West Bengal in respect to India will also continue in coming decades; because, in future, proportionately more people in West Bengal than India will enter into the old age group due to its current larger share of working population and smaller proportion of young population.

Table 2
Measures of Ageing of Population in India and West Bengal by Sex, 2001

<i>Measures</i>	<i>India</i>			<i>West Bengal</i>		
	<i>Persons</i>	<i>Males</i>	<i>Females</i>	<i>Persons</i>	<i>Males</i>	<i>Females</i>
Ageing Index	21.07	19.93	22.31	21.39	20.41	22.42
Dependency Ratio	131	124	138	107	111	128
Median Age	22.74	22.36	23.13	24.07	24.19	23.95

Source:

Growth of Young-old, Old-old and Oldest-old Population

One of the major indicators of population ageing for the nations is the higher growth rate of oldest-old population (Dutta, 2012). The overall tendency of the population ageing across the world reveals the higher growth rate of Oldest-old (80+ years of age) people than Young-old (60–69 years of age). West Bengal is no exception from this trend. The Table 3 indicates that in last forty years (1961–2001) in West Bengal the population of old-old (70–79 years) and oldest-old (80+ years) has increased in a faster rate than the population of young-old (60–69 years). The population of young-old has increased near about three fold (from 1.17 million to 3.42 million) in between 1961–2001 whereas the population of old-old and oldest-old respectively has computed near about four times (from 0.42 million to 1.60 million) and more than four times (from 0.15 million to 0.66 million) within the same period. So, on the basis of present trend it is fair to

Table 3
Aged Population and Their Percentage to Total Population in West Bengal by Age and Sex, 1961–2001

Aged Population by Age and Sex												% of Aged Population to Total Population by Age and Sex													
Young-old (60–69 years)						Old-old (70–79 Years)				Oldest-old (80+)				Young-old (60–69 years)				Old-old (70–79 Years)				Oldest-old (80+)			
P	M	F	P	M	F	P	M	F	P	M	F	P	M	F	P	M	F	P	M	F	P	M	F		
1961	1170991	589263	581728	420224	198571	221653	157721	72826	84895	3.35	3.17	3.56	1.20	1.07	1.36	0.45	0.39	0.52							
1971	1528901	785922	742979	615860	304424	311426	204685	88856	115829	3.45	3.35	3.56	1.40	1.30	1.49	0.46	0.38	0.56							
1981	1940348	990662	949686	814662	402844	411818	274111	127225	146886	3.56	3.47	3.65	1.49	1.41	1.58	0.50	0.45	0.56							
1991	2582141	1320788	1261353	1055304	531055	524249	478128	254858	223270	3.79	3.72	3.87	1.55	1.50	1.61	0.70	0.72	0.69							
2001	3427657	1666469	1761188	1602558	798027	804531	669884	319995	349889	4.28	4.02	4.55	2.00	1.92	2.08	0.84	0.77	0.90							

Source:

comment that in future the population of old-old and oldest-old will also increase in a faster rate than young-old.

Growth of Female Elderly Population

Feminity of elderly population i.e., the existence of larger number of females than males in 60+ populations is another important feature of population ageing all over the world, because, in natural course, age specific mortality rates remain high among men than women in old age. Unfortunately, in India, from 1961 to 1991, a reverse tendency was found where males outnumbered females even in old age (Census, 1991). This might be because of the excess female mortality than males for these cohorts in their infancy, childhood and adulthood (Sudha and Rajan, 2003; Rajan, 2006). In this regard, 2001 would be remembered as an important year in the demographic history of India because after 1951 it is in 2001 again the female population has superseded male population in old age group.

Table 4
Sex Ratio of Aged Population in West Bengal by Age, 1961–2001

	<i>Total</i>	<i>Young-old (60–69 years)</i>	<i>Old-old (70–79 years)</i>	<i>Oldest-old (80+)</i>
1961	1032	987	1116	1166
1971	992	945	1023	1304
1981	992	959	1022	1155
1991	954	955	987	876
2001	1047	1057	1008	1093

The data on female elderly population in West Bengal also reveal a similar tendency. It could be seen from the Table 4 that in 1961 the sex ratio for the aged was in favour to women elderly. After this, the proportion of women population to male population started to decline for every successive census years up to 1991. But, in 2001, the sex ratio has again inclined in favour to female aged. Further, in case of age specific sex ratio of elderly persons for the period 1961–2001, it is found that the sex ratio for young-old and oldest-old shows a fluctuating tendency where in some specific decade the sex ratio has improved but in the next decade again it has dropped. However, the sex ratio of old-old has steadily declined in between the period from

1961 to 1991. It is only in the decade 1991–2001 that the sex ratio has increased among old-old category. Despite these fluctuating or declining tendencies of sex ratio, one point to be noted that the female population has always remained higher than males among the old-old and oldest-old categories for the entire period (1961–2001) except the census year 1991. Moreover, the female aged population has shown the higher growth rate than males for the period as a whole. Several studies suggest that this higher growth rate of female elderly will further boost in future (Rajan, 2006; Rajan *et al.*, 2005). Therefore, in the upcoming decades, overwhelming majority of elderly in West Bengal will be females.

Conclusion

The dynamism of population ageing in West Bengal over the last four decades reveals the fact that elderly population in West Bengal has grown in a faster rate than all India average. The current higher median age of West Bengal and her relatively larger working population base and fewer children ensure that in coming years this higher growth rate will continue. Moreover, within the elderly population the old-old and oldest-old population and population of female has been growing more rapidly. Therefore, in future, the problem of population ageing in the state will take a more serious form as there will be proportionately more aged persons with higher age in average and with larger female population base. For them a better health infrastructure and social safety net would be needed which are still scanty in the state.

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Young Generation and Filial Responsibility: An Empirical Study

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ABSTRACT

Nuclear family in India is emerging very first due to the breakdown of traditional Indian joint family. The nuclear family is also in turmoil stage due to divorce of the parents and moving out of the son or daughter near to their working place and keeping behind their parents. The questions arise who is going to look after them when they won't be able to look after themselves or when one parent remains alive and cannot take care of her self or him self? The present paper investigates the attitude of young generation about their filial responsibility and how they like to compromise their career with this responsibility. The findings indicate that both boys and girls are willing to take their filial responsibility but are not ready to compromise with their career. Both boys and girls desire to live by themselves after their marriage as they think that their relationship with their parents will remain cordial. They believe child-parents relationship is not just reciprocal – it is more than that.

Key Words: Nuclear family, Filial responsibility, Ageing parents, Career.

Throughout the recorded history in India, adult off springs especially sons have taken on the primary responsibility of caring their

ageing parents. But at the height of human civilization, family structure, responsibilities and family bonding are changing very rapidly. Educated adults are moving out from the family home and start living where they get the job just after their education and training. Economic reasons are forcing them to move out from the family. After school life significant number of adolescents stay in a hostel about four to six years for their college education and then they start living somewhere else where they get employment. As a result family bondings are reducing very significantly. In traditional Indian society, every member of the family used to live together. Again due to economic reasons extended family system broke down and nuclear family emerged. The nuclear family is also in turmoil stage due to divorce of the parents and moving out of the sons or daughters near to their working place. In such cases they keep their parents in pitiable condition at their family home. The average life expectancy of Indian people has increased in last few decades and now it is around 70 years. A man is retiring from any meaningful employment at the age of 60. But he survives to another ten years or more. In India most of the Government Organizations provide pension. But majority of the population works in private sectors, where there is no pension. Even those who get pension and any kind of health benefits are not sure how long they will get it in the face of economic slowdown. As a result, elders from all walks of life need financial help and physical assistance from their earning son or daughter.

Literature Survey

Indian culture and religion give a lot of importance on filial responsibilities. It is not easy to overcome cultural, religious and family traditions. As children grow, peers, relatives, neighbours and especially parents influence their cultural and religious values on them. It is the son, who is supposed to take the financial and physical care responsibility of his ageing parents with the help of his wife. Keller (2006) describes filial responsibilities as 'filial duties are direct duties to help, respect, please or benefit parents'. Across societies, all over the world families and especially adult ones remain the main source of support and care for ageing parents (Randel, *et al.*, 1999, United Nations, 2002, Daattland and Herlofson, 2003; Hermalin, 2003; Means, *et al.*, 2003). In India, daughter moves out from the parental

house after her marriage and she is supposed to take care of her father and mother in-laws in husband's family. In Indian tradition, daughter after her marriage becomes primarily part of the groom's family and living with her own parents is less desirable socially and culturally.

After globalization, traditional values and norms in India are changing very rapidly. Women in India are joining in large number in education. They are coming out from their traditional housekeeping role to Engineering, Medicine and all branches of Science and Technology apart from their traditional branches of Humanities. Initially, adult male was the sole earning member of the urban middle class family and his wife was supposed to take care of the household affairs including the ageing father and mother-in-laws. Nowadays educated women are not willing to play the typical house-wife's role as before. They are coming out in large number as a workforce to substitute the family income, to have better life and to be economically independent. They have realized that one income is not sufficient enough to run the family smoothly and comfortably. In another survey on marriage by the same author (sent for publication), both boys and girls mentioned that their spouse should have a well paid job. Young women employees do not like to quit their job for child rearing and family care responsibilities. They manage to run the family with the help of their mother or mother-in-laws and domestic help (Saha, 2011). So, the traditional role of taking care of elderly parents at home by the daughter-in-law is eroding very rapidly from the Indian society. Nowadays it is very common to notice that unmarried son and daughter are living in another state of the country or in a foreign country due to their job opportunity. It is equally true about married son and daughter. Parents, alone will remain at home. As long as they are in good health, they can take care of themselves. The questions arise who is going to look after them when they won't be able to look after themselves or especially when one parent is alive and she/he cannot take care of her or him? Conventional joint family support is becoming more difficult because of the trend toward nuclear family and the individualism of family members. This societal shifts and decline in support have occurred not only in India but also in Western societies. These trends have exposed the ageing parents in difficult situation to receive financial and physical support from their kith and

kin. This has raised great concerns and policy debates among the social scientists and policy makers about how to ensure financial security for these ageing people at present and in future in the context of rapid ageing population (Randel, *et al.*, 1999; Barrientos and Liloyd, 2002; United Nations, 2002).

Objective of the Study

In post-globalized India, increasing number of young boys and girls are joining universities and colleges opting for all types of professions as a career which was unthinkable even a few years before. The awareness about education, social change, formation of nuclear families and more job opportunities at home and abroad have given young generation more freedom, broader outlook and economic independence. In this context, the present study aims to investigate:

- Attitude of young boys and girls towards their filial responsibilities
- How boys and girls will balance their career with filial responsibilities

Methodology

The questionnaire used in present research consisted of two parts: the first part enclosed questions regarding socio-biographical variables of the respondents and the second part contained a five point Likert scale with anchors using strongly agree (5), fairly agree (4), do not know (3), fairly disagree (2) and strongly disagree (1). The data was collected from students of different institute of higher learning in West Bengal. Students were chosen randomly from Engineering, Management studies and general degree courses. Out of 500 questionnaires distributed, 437 were measured complete and used for analysis. The sample consisted of 275 boys and 162 girls' students.

The second part of the questionnaire included eleven questions for boys and twelve questions for girls. Nine questions were common to all. The statistical package SPSS (version 17) was used to analyze the data separately for boys and girls. To explore which factors are significantly playing dominant role to measure the attitude of young generation towards filial responsibility, Factor Analysis was carried out. The form of Factor Analysis used was Principle Component

Analysis with Varimax Rotation. To justify the Factor Analysis, Kaiser-Meyer-Olkin (KMO) test for sampling adequacy and Bartlett's Test of Sphericity were used (Hair, *et al.*, 1998).

Results and Discussion

The social demographic characteristics of the respondents are presented in Table 1. The percentage of male and female students was 62.93 and 37.07 respectively. The majority of the students (80.09%) were in the age group of 18 to 22. Again the majority of the students came from different branches of Engineering (77.35%). About one third of the students only came from rural background (23.80%).

Table 1
Respondents Characteristics Background

		<i>frequency</i>	<i>Percentage</i>
Sex	Male	275	62.93
	Female	162	37.07
Age	18-22	350	80.09
	22-26	76	17.39
	> 26	11	2.52
Course Pursuing	Engineering	338	77.35
	MBA	21	4.81
	BBA	46	10.52
	Others	32	7.32
Residence	City	333	76.20
	Rural	104	23.80

Attitudes of Boys and Girls Towards their Filial Responsibility

To find out the attitudes of young boys and girls to take care of their ageing parents, eleven statement for boys and twelve statements for girls on five point Likert Scale ranging from strongly agree to strongly disagree were considered. The respondents were requested to click where their opinions were more appropriate. To find out which factors influenced them more, Factor Analysis was carried out. Bartlett's test of sphericity and Kaiser-Meyer-Olkin Measure of sampling adequacy were satisfactory in both the cases which justified

the Factor Analysis. The results of the tests for both boys and girls are shown in Table 2.

Table 2
KMO and Barlett's Test for Boys and Girls

<i>Test</i>	<i>Boys</i>	<i>Girls</i>
KMO Test	0.622	0.679
Chi-square	206.276	257.168
df	55	66
P	0.000	0.000

The Eigen values of all the significant components, the variance explained by each component and the cumulative variance were calculated. To determine how many components to retain several procedures have been suggested such as use of Eigen values, Scree plot and percentage of variance (Malhotra, 2007). The Eigen value approach suggests components with Eigen values greater than 1 should be retained. The present study indicates that only five components in both the cases have Eigen values greater than 1 which are capable of explaining the observed variance. The results of Eigen values, percentage of variance and percentage of cumulative variance of component are given in Table 3.

Table 3
Total Variance Explained

	<i>Component</i>	<i>Eigen Value</i>	<i>Percentage of Variance</i>	<i>Cumulative Variance</i>
Boys	1	2.021	18.371	18.371
	2	1.370	12.458	30.800
	3	1.206	10.966	41.796
	4	1.102	10.017	51.813
	5	1.020	9.272	61.085
Girls	1	2.470	20.586	20.586
	2	1.684	14.037	34.623
	3	1.323	11.023	45.646
	4	1.131	9.426	55.072
	5	1.008	8.403	63.475

The first component in the case of boys, accounts for 18.371 per cent of variance, while the second, third, fourth and fifth component interpret 12.458 per cent, 10.966 per cent, 10.017 per cent and 9.272 per cent respectively. They together contribute 61.085 per cent of the total variance. All the remaining components are not significant.

In the case of girls, the first component account for 20.586 per cent, while the second, third, fourth and fifth component interpret 14.037 per cent, 11.023 per cent, 9.426 per cent and 8.403 per cent respectively. Altogether, it contributes 63.475 per cent of the total variance. All other remaining components are not significant.

An important output from Factor Analysis is the component matrix which contains the co-efficient that express the standardized variables in terms of the components. A co-efficient with a large absolute value indicates that the component and the variables are closely related. The co-efficient of the component matrix can be used to interpret the components. We have used rotation method (Variance with Kaiser Normalization) to identify the variables that have a large loading on the same component.

Variables 6, 8 and 10, in the case of boys co-relate and combine with component one after rotation because of their common nature. The component may be labeled as 'desire to take the responsibility of the parents'. The boys have the attitude to help their parents financially and physically. This attitude may change in future when they will enter in working situations and will have their own family. There is a difference between attitudes to help and actually to do it. Component two is related with variables 1, 4 and 11 and may be labeled as 'willing to live by ourselves'. It is a very common notion that two women cannot share a kitchen. But it is the boys who are in opinion to live with his spouses only and think this arrangement will maintain a good relation with his parents. The century old tradition to live with parents is eroding very first among the young generation in modern India. Component three is related with variance 5 and 9 and may be labeled as 'not willing to sacrifice career for their filial responsibility'. The boys are ready to take the responsibility of the parents but not sacrificing their career. In extreme case if it is necessary to sacrifice career due to filial responsibility, it is his wife who should do it. Component four is highly related with only one variable i. e.

variable number 3, and it may be labeled as 'willing to take the responsibility of parents when they need their help'. This help may be financial, physical or both of these. Finally, component five is related with two variables namely variable 2 and 7 and may be labeled as 'child-parents relationship is not just reciprocal'. It is more than that in Indian society. In Indian Hindu society to have a male-child in the family is of paramount importance and it is reflected in their culture and religion. When they worship Goddess 'Durga', they ask her blessing for a son (Panchanan, 1983). According to Manu, a great Hindu philosopher in 200 B. C. 'only sons are entitled of lighting a parent's funeral pyre to ascend him to heaven' (ibid.). It is the son not daughter who is supposed to look after his ageing parents in India. So it is not only the reciprocity relation between parents and son, it is more than that. The 'love' between parents and the son is unconditional.

Table 4
Rotated Component Matrix for Boys

<i>Variables</i>	<i>Compo- nent 1</i>	<i>Compo- nent 2</i>	<i>Compo- nent 3</i>	<i>Compo- nent 4</i>	<i>Compo- nent 5</i>
1.After marriage I would prefer to live by ourselves		0.657			
2.Parents of my spouse should not interfere in any way in our life					-0.545
3.I will take responsibility for caring of my parents when the parents are in need				0.827	
4.I do not want to sacrifice my job just to live with my parents		-0.582			
5.I will adjust my working life according to the needs of my parents			0.631		
6.When my parents won't be able to look after themselves I will have them with me	0.671				
7.I do not consider parents-child relationship is just a give and take policy					0.822
8.As a parents they have done their duty to raise me-up, now it is my responsibility to look after themselves	0.728				

Contd...

Contd...

9.If one of us has to sacrifice his/her career for family responsibilities, I think my wife has to do it	0.779
10.If my parents need financial help I will be delighted to help them	0.712
11.I think if we live separately from our parents, our relationship will remain very cordial	0.764
Component: 1- desire to take the responsibility of the parents	
Component: 2- willing to live by themselves	
Component: 3- not willing to sacrifice career for their filial responsibility	
Component: 4- willing to take the responsibility of parents when they need their help	
Component: 5- child-parents relationship is not just reciprocal	

In the case of girls, variables 1, 2, 3 and 11 co-relate and combine with component 1 after rotation because of their common nature. This component may be labeled as 'willing to live by ourselves'. In the case of boys it was in component 2. The desire to live with the spouses only is more in the mind of girls than the boys. Component two is related with variables 7, 9 and 10 and may be labeled as 'desire to take the responsibility of the parents even after their marriage'. Generally, adult daughters in the United States provide the support to their ageing parents (Aronson, 1992; Rossi and Rossi, 1990; Silverstein, *et al.*, 1995; Sorenson and Zarti, 1996). It is also noticed that older mothers receive more instrumental, financial and emotional support from their children than older fathers' do. Indian girls are also ready to help their parents financially. At present about 30 per cent Indian women are in job market. They are economically independent. Component three is related with variables 4 and 8 and may be labeled as 'child-parents relationship is not just reciprocal'. Component four is highly related with only one variable 12 and it may be labeled as 'dilemma of leaving parents alone after their marriage'. Component five is related with variables 4 and 5 and may be labeled as 'not willing to sacrifice career for their filial responsibility'. Young girls do not want to sacrifice her career just for filial responsibility.

Table 5
Rotated Component Matrix for Girls

<i>Variables</i>	<i>Compo- nent 1</i>	<i>Compo- nent 2</i>	<i>Compo- nent 3</i>	<i>Compo- nent 4</i>	<i>Compo- nent 5</i>
1.After marriage I would prefer to live by ourselves	0.731				
2.Parents of my spouse should not interfere in any way in our life	0.792				
3.I do not consider it mandatory to live with my spouse's parents	0.770				
4.I will take responsibility for caring of my parents when the parents are in need			-0.531		0.506
5.I do not want to sacrifice my job just to live with my parents					0.508
6.I will adjust my working life according to the needs of my parents					
7.When my parents won't be able to look after themselves I will have them with me		0.684			
8.I do not consider parents-child relationship is just a give and take policy			0.590		
9.Being a single child of my parents I consider it is my responsibility to look after themselves even after my marriage		0.524			
10.If my parents need financial help I will be delighted to help them		0.600			
11.I think if we live separately from our parents, our relationship will remain very cordial	0.661				
12.Being a responsible daughter, it is a big dilemma for myself to get married and leave my parents on their own				0.837	
Component: 1- willing to live by themselves					
Component: 2- desire to take the responsibility of the parents even after their marriage					
Component: 3- child-parents relationship is not just reciprocal					
Component: 4- dilemma of leaving parents alone after their marriage					
Component: 5- not willing to sacrifice career for their filial responsibility					

Conclusion

The life expectancy of the general people in India has increased significantly in last decade. After retirement at the age of sixty from a meaningful work, this group of people will survive another ten years or more. In this long journey, one may lose his or her spouse and may be forced to live with his or her son or alone because of the modern

nuclear families' characteristics. As ageing parents they need physical care more than financial care. If a son is employed and lives with his parents, he may take care of his parents with the help of hiring hands. Most part of the day time ageing parent will be alone or with the helping hands. If son and his own family live in different state or foreign country due to their employment, the question is 'who is going to look after these ageing parents'? There is no single answer for this family or social problems. Young generations are very much cautious about their career and job. In India, job market is not very rosy. It is difficult to have a choice able job. Modern society, especially urban society lives on their job and savings. It is the economic reason which forces them not to leave the job and take care of ailing parents. In recent years societal shifts and declines in support have occurred in both developing world and western societies.

In the future, there will be a large percentage of elderly population in our country. By 2001, India became the second largest elderly (60+) populated country in the world (Chakravarti and Sarkar, 2011). Indian Govt. has the responsibility towards its ageing citizens. At the national policy level, the questions are of major importance to present debates about what policy approaches are required to secure the welfare of this growing ageing population in the context of limited public resources. They may set up old-age home where these people may live comfortably for rest of their life. Some private organizations are already in these services but their services are not up-to-the mark. Young generation agrees to take the financial responsibility of their parents.

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Functional Status of the Elderly Santal People

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ABSTRACT

Present study aims to focus on the factors associated with functional status of tribal (Santal) elderly persons (aged 60 years and above) residing in a village of Jharkhand State. The functional status was assessed by using two scales namely: Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL). The findings revealed that 39.29 per cent respondents were found dependent on at least one of the ADL whereas, 83.93 per cent respondents were dependent on IADL. Out of total respondents most common ADL dependency is bladder continence (72.75%) and in case of IADL it is handling finance (74.47%). The correlation between ADL and IADL is positively significant ($r=0.672$).

Key Words: Activities of daily living (ADL), Aged, Instrumental activities of daily living (IADL), Functional status.

India is a land of most rapidly ageing populations (aged 60 and above) in the developing world. This phenomenon is marked by a series of social, cultural and epidemiological implications due to the greater prevalence of morbidity and functional disability in this age group. Functional status is an individual's ability to live independently and to relate to their environment or to perform normal daily activities required to meet basic needs, fulfill usual roles and maintain health and well-being. Functional status subsumes related concepts of

interest: functional capacity and functional performance. While functional capacity represents an individual's maximum capacity to perform daily activities in the physical, psychological, social and spiritual domains of life, functional performance refers to the activities people actually do during the course of their daily lives. A maximal exercise test measures physical functional capacity, while a self-report of activities of daily living measures functional performance.

Functional status can be influenced by biological or physiological impairment and socio-economic factors, symptoms, mood and other factors. It is also likely to be influenced by health perceptions. For example, a person whom most judge to be well but who views himself as ill may have a low level of functional performance in relation to his capacity.

Loss of functional status is associated with increased risk of institutionalization and falls and, it was considered an independent risk factor for mortality. Numerous studies have shown an association between ageing and higher risks of functional dependence, as well as a high prevalence of functional disability or limited functional ability in the older adult population. These studies highlight that the added years of life should be accompanied by quality of life and should be free from the high cost of dependence. The decline in functional status may also be associated with a number of multidimensional factors that interact to determine this status in older adults. Early detection of these factors can help prevent functional dependence in this group.

Functional ability is a key indicator of elderly to stay at home. For progressive chronic diseases like heart failure and chronic obstructive pulmonary disease, it is particularly important to understand functional ability as functional status losses are inevitable. Slowing the decline, then, is the goal for most patients with these diseases and the health care workers caring for them.

Functional status has been used to describe motor function, ability to perform ADL (activities of daily living) and the ability to perform IADL (Knight, 2000). As people grow old they may experience that their health deteriorates and that being old often involves functional decline (Bank, 1995). Decline functional status is measured by an individual's loss of independence in Activities of Daily

Living (ADL) and Instrumental Activities of Daily Living (IADL) over a period of time.

What is Activities of Daily Living (ADL)?

The term *Activities of Daily Living* (ADL) has been used to refer to a range of common activities whose performance is required for personal self-maintenance and independent community residence (Fillenbaum, 1988). Functional status can be defined as the ability to perform activities necessary to ensure well-being, and it can be assessed by examining the ability to carry out various activities of daily living (Heikkinen, 1998). The ADL functional statuses with respect to eating, dressing, getting in and out of a bed or chair, using the toilet, bathing, and continence are used to measure the elderly's degree of independence in daily living (Jagger, *et al.*; 1993). If none of the six ADL activities is impaired, the individual is classified as "active"; if one or two activities are impaired, he or she is classified as "mild disabled"; "severely disabled" refers to elderly who have three or more activities impaired (Zeng, *et.al*; 2002). ADLs are defined as "the things we normally do ... such as feeding ourselves, bathing, dressing, grooming, work, homemaking, and leisure". Measurement of activities of daily living (ADL) is an indicator of an individual's functional capacity, a reasonable proxy of health status, and a key element in attempts to measure quality of life.

What is Instrumental Activities of Daily Living (IADL)?

Instrumental Activities of Daily Living, which is concerned with more complex activities needed for independent living (Fillenbaum, 1988). IADL refer to a series of life functions necessary for maintaining a person's immediate environment. This type of activities measure competence in functions that are less bodily oriented than physical self-maintenance. They include managing money, shopping, telephone use; travel in community, housekeeping, preparing meals, and taking medications correctly. It is performed by a person who is living independently in a community setting during the course of a normal day, such as above tasks. IADL are activities related to independent living and involve interaction with the physical and social environment, generally more complex than personal ADL. Instrumental activities of daily living (IADLs) measures an individual's

ability to carry out tasks that may not need to be done daily like ADLs, but which nevertheless are important for living independently. Intervention may be required to help an individual adapt to difficulties experienced in performing IADLs. Performance of IADLs requires mental as well as physical capacity.

Objectives of the Present Study

The purpose of this study was to find out the functional status of the Santal elderly by using two different scales - ADL and IADL. The study also aimed to understand the prevalence and types of functional dependence of tribal elderly living in a social environment. The relevance and importance of assessing functional status of tribal elderly was also within the objectives of this study.

Materials and Methods

Sample

A uni-ethnic village resided by the Santal tribe was purposively selected for the present study. The village is named Dhadkidih and located within Ghatsila Police Station in the district of Singhbhum in Jharkhand state (India). In the village there were only 56 elderly (aged 60 and above) of both the sexes. All aged people who are permanently staying in their own house were considered for the present study.

A structured questionnaire schedule was used to collect data on social milieu and demographical aspects of the respondents. Functional status of the respondents was assessed by using the Barthel Index (BI) of Activities of Daily Living (using bowel, bladder, bathing, feeding, dressing, grooming, transferring, toilet use, mobility and stairs use) and the Lawton (1988) Instrumental Activities of Daily Living (telephone or mobile use, shopping, food preparation, house-keeping, laundry, transferring, own medication and handling finance). Other standard anthropological methods like participation observation, case studies were also followed. The data were computed by using SPSS v 16.0.

Results and Discussion

Table 1
Socio-demographic Characteristics of the Respondents

<i>Characteristics</i>	<i>Male</i>		<i>Female</i>		<i>Total</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Population	25	44.64	31	55.36	56	100.0
Age Group						
60–69			12	48.0	13	41.94
25	44.64					
70–79			10	40.0	12	38.71
22	39.29					
80–89			03	12.0	06	19.35
09	16.07					
Marital Status						
Married		17	68.0	15	48.39	32
57.14						
Widow		00	00.0	16	51.61	16
28.57						
Widower		08	32.0	00	00.0	08
14.29						
Education						
No education		22	88.0	30	96.77	52
92.86						
Primary			03	12.0	01	03.23
04	07.14					
Family type						
Joint			24	96.0	26	83.87
50	89.28					
Nuclear			01	04.0	02	06.45
03	05.36					
Broken			00	00.0	03	09.68
03	05.36					
Occupation						
Unskilled labor	02	08.0	01	03.23	03	05.36

Table 1 shows the socio-demographic characteristics of the respondents. The mean age of the respondents was 71.61 years old and the median age was 72 years. As per distribution of the sex of the respondents female (55.36%) predominated over male (44.64%). It is evident from the Table 1 that in case of the age group 80 and above

there is more female elderly (19.35%) compared to their male counterpart (12.0%). Among the studied population 28.57 per cent were widow, 14.29 per cent were widower and 57.14 per cent were married. Out of total male population 68 per cent were married where as out of total female population 48.39 per cent were married.

In case of educational status of the respondents it is found that there are only 07.14 per cent persons who received primary education and remaining population were unlettered. Table 1 shows that among the females (96.86%) were illiterate where as in case of male 88.0 per cent were unlettered out of total male respondents.

It is evident from the above table most of the respondents live in joint family. There are only 05.36 per cent female who are living in broken family. However, 46.43 per cent respondents are living with their spouses and sons. Among the total respondents 35.71 per cent are without spouse and they are living with their sons. Only 08.93 per cent female respondents have solitary living.

Among the total respondents 35.71 per cent are engaged in agricultural activities in their own land and out of the total female respondent 26.79 per cent participate in household chores. The household chores are always the activity of the females in the village. Out of the total respondents more female (41.94%) are without any occupation compared to their male counterpart (16.0%).

Table 2
Age Group Wise Functional Level of Studied Sample

<i>Functional Level</i>		<i>Age Group (Years)</i>		
		<i>60-69 (%)</i>	<i>70-79 (%)</i>	<i>80+ (%)</i>
ADL	Totally dependent	0.00	0.00	33.33
	Very dependent	0.00	4.55	44.44
	Partially dependent	4.00	9.09	0.00
	Needs help to do	4.00	40.90	11.12
	Independent	92.00	45.46	11.11
IADL	Dependent	4.00	13.64	66.67
	Low function	0.00	27.27	33.33
	High function	64.00	54.55	0.00
	Independent	32.00	4.55	0.00

According to Barthel Index (BI) 22 respondents (39.29%) were functionally dependent on at least one of the Activities of Daily Living. The categorization of dependency levels has been presented under Table 2. Among the respondents belonging at the age group 60 to 69 92 per cent were functionally independent. However, among the respondents belonging at the age group 70 to 79 it is found that there were 45.46 per cent 'independent', 40.9 per cent have 'need help to do', 09.09 per cent 'partially dependent' and 04.55 per cent 'very dependent' as per Barthel Index. Among the respondents at the age group 80 and above 33.33 per cent were 'totally dependent', 44.44 per cent were 'very dependent' and 11.12 per cent were in 'need help to do' as per BI.

According to Lawton Instrumental Activities of Daily Living (IADL) out of the total number of respondents 47 (83.93%) were dependent on at least one activity. Functional level of 64.0 per cent population was high and 32.0 per cent were totally independent but only 04.0 per cent were dependent on IADL and they are belonging at the age group 60 to 69. Among the populations within the age group 70 to 79 there were 54.55 per cent people who were 'functionally high' followed by 27.27 per cent people under the category of 'low functional level' and 13.64 per cent people under 'totally dependent' category and only 04.55 per cent were under 'independent' category. The functional level of the population aged 80 and above is lower compared to the population belonging at the age ranging from 60 to 79 since at the age group 80 and above 66.67 per cent were 'totally dependent' and 33.37 per cent belonging to the category of 'low function'.

From the Table 2 it is also revealed that as the age of the population go on, the dependency rate of ADL and IADL increases. Dependency rate is higher in case of female because they live longer than their male counterpart. It is also revealed that the studied population is more dependent on IADL (83.93%) than ADL (39.29%).

Table
Types of Functional Dependency

<i>ADL (No of Dependent = 22)</i>			<i>IADL (No of Dependent = 47)</i>		
<i>Dependence on</i>	<i>No</i>	<i>% of Dependency</i>	<i>Dependence on</i>	<i>No</i>	<i>% of Dependency</i>
Bowel	11	50.0	Telephone use	05	10.64
Bladder	16	72.73	Shopping	07	14.89
Bathing	11	50.0	Food preparation	31	65.96
Feeding	04	18.18	Housekeeping	23	48.94
Dressing	07	31.82	Laundry	07	14.89
Grooming	05	22.73	Mode of transportation	25	53.19
Transferring	06	27.27	Own medication	04	08.51
Toilet use	12	54.55	Handle finance	35	74.47
Mobility	05	22.73			
Stairs	**				

* Some respondents were dependent in more than one activity.

**In the study area all the houses were single storey mud house without stairs.

It is revealed from Table 3 that out of total population 39.29 per cent shows some kind of dependence on Activities of Daily Living (ADL) assessed by Barthel Index (BI) which encompasses question assessment on bowl and bladder continence, ability to bathing, feeding, dressing, grooming, transferring (e.g. from bed to chair etc.), ability to use toilet, mobility and ability to climb stairs. The most common type of functional dependence were bladder continence (72.73%) followed by toilet use (54.55%), bowel continence (50.0%), bathing (50.0%), dressing (31.82%), problem of transferring (27.27%), grooming (22.73%), mobility (22.73%) and 18.18 per cent with feeding.

It is evident from Table 3 that among the respondent dependency ratio on Instrumental Activities of Daily Living (IADL) based on M.P. Lawton is greater than the Activities of Daily Living (ADL). Like ADL, Lawton Index encompasses eight questions such as telephone use, shopping, food preparation, housekeeping, laundry, transportation, own medication and handling finance. The most common dependence on IADL were in handling finance (74.47%) followed by preparing food (65.96%), transferring (53.19%), housekeeping

(48.94%) and least dependency with shopping (14.89%), laundry (14.89%), telephone use (10.64%) and own medication (08.51%).

Table 4
Mean sd and t-test of ADL and IADL of Studied Sample

<i>Variable</i>	<i>N</i>	<i>Male</i>		<i>Female</i>		<i>t-value</i>	<i>P</i>		
		<i>Male</i>	<i>Female</i>	<i>Mean</i>	<i>Sd</i>	<i>Mean</i>	<i>Sd</i>		
ADL	25	31		4.4800	0.91833	4.0000	1.39044	1.483	0.144
IADL	25	31		2.7600	0.83066	2.9032	.97826	−0.582	0.563

From Table 4 it is evident that the mean value of male is greater than female in case of ADL and in the case of IADL mean value of female is greater than male. It also depicts that the t-value is found to be non significant in case of difference in mean values of both ADL and IADL, between males and females.

Table 5
Age Group Wise Mean (sd) and ANOVA of ADL and IADL Among the Studied Sample

Variable	Age group (years)			F	Sig.
	60-69 (n=25)	70-79 (n=22)	80+ (n=9)		
ADL	4.880 (0.44)	4.272 (0.83)	2.222 (1.39)	35.939	0.000
IADL	3.400 (0.50)	2.772 (0.75)	1.444 (0.52)	33.600	0.000

It is clear from the table that the mean of ADL in the age group of 60-69 is greater than other two age groups (70-79; 80 and above). Further, the mean of IADL in the age group of 60-69 is also greater than other two age groups. For both the parameters, the mean differences are found to be significant ($F=35.939$ and 33.600 for ADL and IADL, respectively). It indicates that mean score of ADL and IADL is highly significant.

Table 6
Correlation Coefficient of ADL and IADL

		<i>ADL</i>	<i>IADL</i>
ADL	Pearson Correlation	1	.672**
	N		56
IADL	Pearson Correlation	.672**	1
	N	56	

** Correlation is significant at the 0.01 level.

There is the correlation between ADL and IADL and the association between ADL and IADL is positively significant ($r=0.672$).

It was found that 92 per cent of the elderly people (aged 60 and above) under study belong to age group 60–69 and are independent on ADL. However, it is evident that percentage of independency decreases with the increase of age. It is also found that respondents at the age 80 and above were functionally ‘very dependent’ followed by ‘totally dependent’ category compared to the elderly segment below the age of 80. Among the respondents in the age ranging from 70 to 79 it is found that 45.46 per cent of them need help from someone to do such kind of day to day essential activities. It may be said that functionally they were independent when this segment was in the age ranging from 60–69 years and they may be ‘fully dependent’ at the age of 80 and above. Similarly, all of these findings are applicable to IADL; however, dependency of IADLs is higher than ADLs because this is more skilled job and requires more complex expertise. Concerning the functional capacity based on the result of this study 39.29 per cent population are dependent on ADL and the percentage increasing to 83.93 per cent for IADL.

In the area of ADL, the study depicted that continence (both bowel and bladder) was the activity with higher dependence. On other hand in case of IADL, handling finance were the most dependent ones.

On the basis of the findings of present study it may be concluded that the functional decline is common among the elderly population under study. The risk factors for functional decline are age as well as presence of ailments rather than socio-economic status. Compared to their male counterpart, declined functional level, development of the disability and dependence found more among the female elderly owing to their greater longevity and widowhood. Prevention of functional

decline of the elderly people need priority and such prevention may be possible by way of detecting the functional decline at first stage followed by rehabilitation and/or quality care in the home. There are negative effects of decline of functional status on health and the concept of "Active Ageing" fully demolishes by decline of functional status. The authors suggest that the current study may be extended further over a large number of elderly populations across different ethnic groups so that same may be used for future policy planning, execution and service enhancement purposes.

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Home Based Care Service for the Aged: A Business Model of Social Welfare, Profit and Poverty Alleviation

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ABSTRACT

The present study conducted in Kolkata city, shows, how outside any government effort, purely on private business initiative, care service for the aged and employment for the marginalised women were made possible. This brings out a social welfare role of business which is not commonly associated with business. The total sample of the study was 475: ayahs (N=300), ayah centre owners (N=60), and a knowledgeable member of the households using ayah service and/or the aged person (N=115). The data was collected by using of interview schedules. It was found that in the process of earning profit by providing ayahs (women service providers) for home based care for the aged, the ayah centres not only ensure a steady and reliable care service for the aged, to the families in the need of such services, they also empower vulnerable women (ayahs) by providing them an earning that enables their needy families to survive.

Key Words: Home based care service for the aged; Profit, poverty alleviation and social welfare; Business model.

Business earns a profit while providing goods and services for the members of the society. It contributes to the growth of economy,

provides employment and earning to the members of the society. However, profit maximisation being the primary goal, business is not normally expected to focus on 'social welfare'. Of course, this does not mean that business is completely devoid of playing any welfare role. There are claims of welfare role of business from various schools. For instance, the father of capitalism like Adam Smith argued that the individual pursuit of self-interest (through business) helps the entire society to prosper. From narrow self-interest comes, to use Smith's (1937) famous phrase, "greatest good of the greatest number of people." On the other end, there exist the school professing Corporate Social Responsibility - business 'should' do well to the society. And in-between, there is a school of 'eradicating poverty through profits' by serving 'the Bottom of the Pyramid' (Prahlad 2005). The most recent and powerful proponent of humanitarian role of business is the concept of 'social business', articulated by Yunus (2008) which unlike profit maximising business, primarily aims at serving a social cause in a self-sustaining manner through business on a cost recovery basis or more.

Social welfare, on the other hand, is considered as the primary responsibility of the state. However, the extent and the nature of welfare service to be provided by the state vary depending on the political ideology subscribed by a particular state. For instance, a socialist state is supposed to meet all the needs, inclusive of welfare needs, of its citizens. A capitalist state is expected to provide welfare services to the most vulnerable section of the society who fails to take the opportunities provided by the market. In a welfare state, the state takes the main responsibility of meeting the welfare needs of its citizens (Williams, 1989). Non-government organizations also play a role in providing social welfare services. However, they operate on a limited scale and their role is secondary to state's role. It is under such backdrop, the present paper, documents an example of a business which, in the process of earning profit, serves a highly needed social welfare service and in the process alleviates poverty of a vulnerable section of the society.

Among the various functions performed by the family, taking care of the aged is important one. With the progress of

industrialisation and urbanisation many functions traditionally performed by the family are moving away from the family to other agencies. Providing care service to the aged is one such function which is in the process of moving away from the family to outside agency even in a non-western society like India. Breaking away of the Indian joint family system has added to this process. Because of the emergence of nuclear family and small family norm, often aged persons are in a situation to live on their own, away from their children or other younger family members – devoid of the presence of someone in the family to look after them. Secondly, as per with the global trend life expectancy is increasing in India, particularly among the upwardly mobile middle class and upper classes due to availability of improved medical treatment and improvement in standard of living. However, as people are surviving longer, the quality of life at the very old days of survival, calls for greater demand of caregiver's service. Even when they live with their children, son, daughter-in-law or daughter, son-in-law or other younger members of the family, often being pre-occupied with the demand of their job, may not be available to provide the type of care service needed particularly for those who are very adversely affected by the ageing process. Thus, urban nuclear families are finding it difficult to provide such engaged care service to the aged by members of the family. To tackle this problem keeping the aged away from the family in old age home is not considered as a socially desirable option by the children as well as the aged parents in Indian society. Thus, there emerged a gap in fulfilling the care need of the aged. To meet this need, hiring fulltime home based service of care givers for the aged caught on as a flourishing small scale business opportunity in urban India. This service enabled the families in urban India, to fulfill the care giving need of the aged at home. These service givers are women, known as ayahs (who mainly take care of the old people). Their service is less expensive than hiring a professional nurse. Demand for such service is increasing among middle class and upper middle class families in urban India. Agencies supplying man power for baby seating, cooks, drivers, security personnel etc. were in existence for some time. Of late, agencies specifically supplying (wo) manpower for providing home based care service for the aged became an important addition in urban India. In Kolkata, these centres are popularly known as ayah centres. Typically, one can hire ayahs from such centres for looking after old people at their residence, on a daily

wage rate¹, payment to be made at the interval of a week or ten days. Service of the ayahs can be hired for twelve hourly shifts, the day shift or night shift or for both day and night shifts as per need. The ayah centres ensure regular supply of reliable (particularly in terms of security) (wo)manpower for this service. Regular and reliable service is very essential as the old people need this service on a regular basis. Ayah centres collect a commission² from the wage paid for this service. Those willing to provide this service enroll their name with an ayah centre. Often, ayah centres charge a fee for this enrolment. They are invariably women and usually without any formal training in taking care of the aged, but may acquire some on the job skills in looking after the aged. Ayah centres advertise their services and on receiving call for providing such service, supplies ayahs to the families in the need of such services.

Under this arrangement the aged member remains in the family and can receive dedicated service of a care giver – a far more favourable arrangement both for the aged person and family members, in comparison to the isolation from the family in old age homes. This arrangement of taking care of the aged at home is a socially enabling arrangement for the urban middle class and upper middle class families. Apart from fulfilling a felt need of urban social life, of providing care to the aged at home, this business also performs a function of poverty alleviation while earning a profit, as they create employment opportunity for marginalised women, the ayahs. Thus, it is argued that the ayah centre business, providing home based care service to the aged, is an example of a business which provides a social welfare service, does poverty alleviation by providing employment to marginalised women and at the same time provides an earning to a group of entrepreneurs in the form of profit. These three functions of social welfare, poverty alleviation and profit are being performed simultaneously, not so much as a part of conscious planning but are happening in the process of addressing a business opportunity by a group of entrepreneurs.

The present study was undertaken in the context of these ayah service centres. The study specifically probed into: 1) nature of social welfare function performed by the ayah centres; 2) poverty alleviating role of the ayah centres; 3) nature of profit made by the ayah centres.

Data for this study was collected from city of Kolkata, in West Bengal, India.

Method

The study was based on survey research and data was collected from greater Kolkata by interviewing ayahs (N=300), ayah centre owners (N=60) and a knowledgeable member of the households using ayah service and/or the aged person (N=115), with the help of interview schedules. A method was followed for selecting a representative sample of ayah centres of the city.

Findings and Discussion

Welfare Service

In this section the author has discussed who hires ayahs for taking care of the aged, why they use ayah service and how useful is this service to them?

As expected, it was found that it is mainly the small size nuclear families use ayah service for looking after the aged. The findings of this study show that family members of beneficiary families (N=115) were not equally distributed. 44 per cent (N=51) families had only two members, 51 per cent (N=58) families had 3 to 5 members and only 5 per cent (N=6) families had 6 members. The obvious reason for opting for ayah service is the lack of manpower in the family to undertake the task of providing care to the aged. Nuclear family of smaller size has increased the dependence of the family on outside agencies for various functions traditionally performed by the family; the emerging trend in urban India of hiring care giver's service for looking after the aged at home is an important part of that.

The aged persons or their household members were asked about reasons for availing ayah service?. The earnest need of keeping ayah for looking after the aged is obvious from the answer given by them were: a) Do not have anyone to look after me (54%), As my children reside in their place of work somewhere else, there is no one to look after me (13%), My health condition requires continuous monitoring and family members lack time and capability for that (13%) My wife is too old and physically not capable to look after me (5%) and other reasons

(15%). A somewhat tragic reality of urbanisation is revealed in these responses. The main reason is that no one in the family is available to look after the aged.

Another related question asked was- what was the reasons for hiring ayah from the ayah centre and not opting for some other arrangements?. It was reported (see Table 1) that an important value addition that ayah centres brought in providing care to the aged is safe and secure care service. Safe in the sense that, ayah centres are supposed to check the background information of the ayahs in terms of their place of residence (by checking their voter identification card or other residential address proof) and other credentials and also supposed to take some responsibility in terms of safety (theft etc.). Another important point that was mentioned by some beneficiary households is that ayah centres are capable of providing undisrupted care service for the aged. In case of absence of a particular ayah or discontinuation of any particular ayah, ayah centres provide immediate replacement which is very much essential for the aged who requires continuous care service. Where 24 hours care and monitoring is needed the ayahs are hired for day and night shifts and an ayah is supposed to leave the place of work only after handing over the charge of the aged to another ayah. Additionally, some felt that the ayahs from ayah centre are more efficient in providing care to the aged as they get experienced in taking care of the aged in the job.

Table 1
Reasons for Hiring Ayah from Ayah Centre

<i>Reasons</i>	<i>% N=115</i>
Ayah from ayah centre is safe and secure	25
They know their job well	5
An ayah from ayah centre is safe and secure and they know their job well	64
An ayah from the ayah centre is safe and secure and regular as replacement is provided	3
An ayah from ayah centre is trustworthy and other reasons	3
Total	100

Finally, to a question 'Are they satisfied with the ayah service?' 99 per cent of the beneficiary households reported that they are satisfied with the services provided by the ayah.

In summing up, the findings presented in this section, it may be said that in the small nuclear families of urban India, often besides old persons, other adult family members are away in their place of work during the day or other members reside somewhere else. Thus, those families are not in a position to attend the aged member of the family who requires constant care and supervision. The ayah centres have emerged as a boon under such situation providing reliable service to the lonely old members of those families. Thus, ayah centres are performing a very valuable social welfare function in our society enabling them to remain in the family and saving them from the isolation of old age homes. This is a valuable reprieve for the families availing the service of ayah centres.

This section depicted the loneliness of the life of the aged in small urban nuclear families. It may be pointed out here that the ayah's service primarily takes care of meeting the physical dependency need of the aged – which in itself is a great thing. But the mental deficiency of the lonely living of the aged need to be addressed, which cannot be fulfilled by just providing home based care giver service of the ayahs. Secondly, there is an important issue of affordability to arrange for home based care service for the aged, which needs to be addressed.

Profit

This section describes the ayah centre business focusing on the socio-economic background of the ayah centre owners and the type of profit they make from this business.

It is heartening to note that, in the background of male domination in most businesses, 63 per cent of the ayah centre owners were female and only 37 per cent were male. This is because of several reasons. As this business involves dealing with ayahs who are female, running the business by a female person is convenient. Besides, this business primarily being home based business, women find it a convenient business to get in. Thus, ayah centres present an independent earning opportunity for those women.

Table 2.1
Marital status of the ayah centre owners

<i>Marital Status</i>	<i>% N=60</i>
Married	68
Single	22
Separated/Deserted/Widow	10
Total	100

χ^2 34.300 df: 2 *p*: 0.001

Marital status of the ayah centre owners (Table 2.1) shows that this business not only provides employment opportunity by providing an employment opportunity to the women who are single, separated, dissertated or widow, it also plays a rehabilitative role. They together constitute one third of the ayah centre owners for whom this business also operates as a source of social security. Chi squire test shows that the observed frequencies are statistically significant.

Table 2.2
What they did before?

<i>What did before?</i>	<i>% N=60</i>
I was a housewife	32
I was working in public/private sector	32
I was working in a hospital/as nursing staff	13
Others	23
Total	100

χ^2 : 5.467 df: 3 *p*: 0.147

The information was collected regarding what they (ayah centre owners) did before starting ayah centre. The findings are presented in Table 2.2. Earlier we have seen that 63 per cent of the ayah centre owners were women. Thus, in Table 2.2 we find that half of the women owners of the ayah centres said that they were just housewives before starting ayah centre. This group constitutes around one- third of the ayah centre owners. Another one third of the ayah centre owners said that they were working in public or private sector jobs. Often nursing staff of hospitals or nursing homes left their job and became a small time entrepreneur by starting an ayah centre. Being associated with nursing homes and having familiarity with ayahs

working at nursing homes and observing the demand for ayahs for the aged patients prompted them to start ayah centre for providing ayah service for the aged. This is a common way to become an entrepreneur which is called 'industry way to entrepreneurship'. However, they constitute only a 13 per cent of the ayah centre owners.

Table 2.3
Monthly Income from the Ayah Centre

<i>Monthly Income in Rs</i>	<i>% N=60</i>
Up to 6000	37
6001-11000	35
11001- 21000	18
Above 21000	10
Total	100

χ^2 : 12.133 df: 3 p : 0.007

Size wise (number of ayahs registered for employment) ayah centres were of small scale operation (up to 30, 37%; 31- 60, 35% and above 60, 28%). Thus, ayah centres provide a modest income. Monthly income of ayah centers is presented in Table 2.3. Around 72 per cent of the ayah centres have reported a monthly income up to Rs 11,000. Like most income data this data on income should be taken with a pinch of salt, as this was self-reported and could not be verified with any other data source. However, income from ayah centre is not the only source of income of those families. As 63 per cent of the ayah centre owners were female, often they are not the only bread earner of their families. Income from ayah centre may be considered as only one source, often a subsidiary source of income for those families.

To sum up, the interesting point is that ayah centre business is run predominantly by women; one third of whom are either single or divorced. Thus this business provides a support for those women. This business needs little capital hence many housewives run this business to provide an additional source of income to their families. This business is suitable for women as this business employ women and being home based business women members find it easy to run. This women friendliness of ayah centre business is a unique feature of ayah centre business. Though in terms of earnings this is not a very lucrative business, in terms of investment and effort involved and women friendliness, this can be considered a great business

particularly for housewives or unmarried women. However, as this business serves an important social welfare function, there is an urgent need to bring this business under proper regulations and professionalisation.

3. Poverty Alleviation

We have seen earlier that ayah centres provide an important social welfare service. Along with plying this welfare role, ayah centres also indirectly play a poverty eradicating role by providing meaningful employment opportunity as ayah, to women who generally come from marginalised socio-economic background. In this section, for an understanding of this poverty alleviating role of the ayah centres, we will take a look at a) the socio-economic background of the ayahs and b) their earning as ayahs and its impact on their families.

The ayahs (N = 300) hail from much marginalised section of our society. Though the ayahs of our sample provide their service to the city dwellers, they often reside in the hinterland of the city and commute a long distance for work. Thus, though the ayahs of our sample provide service in the urban area, to a question 'where they reside at present' a 27 per cent said they reside in rural areas.

The majority of the women work as ayah during their 30s and 40s (44%). 18 per cent ayahs were in their 20s and 30 percent ayah were in the age group of 41 years to 50 years. Only 8 per cent ayahs were in the 50s. Ayahs work for 12 hours therefore, younger women are physically fit to work as ayahs. Majority of ayahs had education upto secondary level.

Table 3.1
Marital status of ayahs

<i>Marital status</i>	<i>% N=300</i>
Married	62
Single	14
Divorced/Disserted/Widow	24
Total	100

χ^2 : 112.020 df: 2 *p*: 0.001

Table 3.1 shows that though a majority of the ayahs are married, a substantial percentage of them are single, divorced or disserted by their husband or they are widow. The table indicates that employment opportunity at ayah centres provides two types of support to these women. To the women who are married, ayah centres provide additional source of income to support their needy families. For those women who do not have anyone to support, employment opportunity at the ayah centre enable them to survive with their own income. This brings out a rehabilitative role of ayah centres for the women in need. Chi-square test of goodness-of-fit found the observed frequencies are statistically significant.

Table 3.2
Occupation before taking up ayah job

<i>Occupation</i>	<i>% N=300</i>
Unemployed	78
Cook	7
Maid servant	5
Private tuition	2
Labour	2
Sewing	3
Others	3
Total	100

χ^2 : 1009.560 df: 6 p : 0.001

The author probed into occupation of the ayahs before taking up ayah job. Table 3.2 shows that only around one fifth of them were employed before getting employment as ayah. Hence, for the most of them (78%) employment as ayah has provided them a source of earning as they were unemployed before getting ayah job. Thus ayah centres provide employment opportunity to marginalised women with little education (mostly up to class X). Chi-square test of goodness-of-fit found the observed frequencies are statistically significant.

Table 3.3
Husband's Occupation

Not applicable	133	44
Van rickshaw driver	32	11
Petty trader	48	16
Labour	28	9
Car driver	16	5
Salesman	5	2
Others	38	13
Total	300	100

χ^2 : 248.940 df: 6 p : 0.001

Disadvantaged economic condition of the ayahs is very clear also from their husband's occupational status presented in Table 3.3. A 44 per cent of the ayah's were deprived of a support of husband's earning – either they were disserved by their husband or their husband were unemployed or husband were no more. Those who are lucky to have a support of their husband's income, husbands earn a modest income being employed as van rickshaw driver, petty trader, labourer, car driver, salesman etc. Chi-square test of goodness-of-fit found the observed frequencies are statistically significant.

In response to a question about the reasons for taking up ayah job?

Table 3.4
Reasons for taking up ayah job

<i>Reasons</i>	<i>% N=300</i>
To supplement husband's income	41
Husband's death/absence	20
No other earning member in the family	14
Husband income is unstable	12
Husband is unemployed	4
Others	9
Total	300

χ^2 : 156.400 df: 5 p : 0.001

The answers given by them have been presented in Table 3.4. This table shows that around two fifth of the ayahs work to

supplement their husbands income and the remaining three fifth are the main bread earners of their families. It is interesting to note that in our patriarchal society around 60 per cent of the families who work as ayahs; their income is the only source of income to support their families. Studies have also shown that among the poor it is the income of the women of the poor households which is spent more productively for meeting the basic needs of those families like food, clothing, shelter, medical expenses, education etc. (UNICEF. 1992). This brings out the significant role that this employment opportunity as ayah for those families. Chi-square test of goodness-of-fit found the observed frequencies are statistically significant.

Table 3.5
From Whose Income Household Expenditures were Met Before and After Employment as Ayah

<i>Source of household expenditures</i>	<i>Before</i>	<i>After</i>
	% <i>N=300</i>	% <i>N=300</i>
Primarily my husband's income	67	1
Primarily my income	10	39
Income of both of us	13	52
Primarily parent's income	8	3
Others	2	5
Total	100	100

Whose income supported the families of respondents (Ayahs) before and after they got employment as ayah?. This data is presented in Table 3.5. One striking change we find in this table is that the absolute decline in the role of solely husband's income in meeting household expenses after our respondents got employment as ayah. After her employment as ayah, household expenditures were increasingly met either primarily from her income or both from her income and her husband's income. Dependence on parent's income or other sources also declined. All these are a clear sign of her economic empowerment in controlling household expenditure. Does this enhance the social status also of the ayahs in their households? Because

of the complex nature of this question we did not specifically probe this question in our study. But some other studies are skeptical on role of economic empowerment of poor women on their social status. Nevertheless, the economic empowerment of these marginalised women due to ayah job is a thing to be acclaimed.

To sum up, the findings of this section showed that ayahs hail from marginalised background³. There is a dire need of a source of income in those families and often the ayahs were the sole bread earner in those families. Mostly they were not having any alternative source of earning before they got ayah job. And their earning as ayah played a vital role in running their families. Thus we conclude that employment as ayah indeed played a great poverty alleviating role.

In this paper the author tried to capture the picture of an emerging trend in taking care of the aged in urban India. It was found that as a part of industrialisation and urbanisation changes have taken place in the social life which has made the small nuclear families and double earner families ill-equipped to take care of the aged parents particularly when full time care service is required by the aged. This has created a business opportunity for providing care giving service for the aged in their homes, a much desirable option than old age homes particularly in the context of Indian cultural norms. The study revealed that mainly small time entrepreneurs have availed this business opportunity. This has emerged, outside any government initiative. It was also found that this business being women friendly, often enabled housewives or unmarried women to become a smalltime entrepreneur. More importantly ayah centres provided employment opportunity to women belonging to marginalised section of the society and enabled their families to survive. Thus, social welfare, profit and poverty alleviation are happening through this business of ayah centres, making it a unique example of a beneficial business model.

Conclusion

To conclude, the findings of this study show that there are models of business which serves social cause and such business models should be promoted. However, this by no means, implicate that state

will have a reduced role in providing social welfare. Particularly state should play an enabling role for business models serving a social cause. For instance, in the context of ayah centre business, there is an urgent need for the state to regulate the operation of the ayah centres in terms of wages paid to the ayahs, commission charged by the ayah centres and regulate other service conditions of the ayahs. State should ensure that ayah centres provide reliable and quality service to the aged. Most importantly arrangement should be made to enable ayah centres to provide professional service through appropriate training to the ayah centre owners and the ayahs.

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Notes

1. The wage rate of the ayahs varies locality wise, average is around Rs 170 for an twelve hour shift and ayahs are supposed to bring their own food.
2. The rate of commission varies area wise; typically ayah centres take a commission of around Rs 30 from the wage per shift.
3. We had a question on caste and religion of the ayahs in our questionnaire. We found that ayahs were reluctant in answering that question. Hence, we decided to drop that question. However, from their surnames we could get some idea about their caste background and found that most of the ayahs belong to scheduled castes, scheduled tribes and other backward classes. Interestingly, we found that all ayahs in our sample had Hindu names. On further enquiry we were told that a small number of ayahs may belong to Muslim community but they use a Hindu name while registering at ayah centres for better employability particularly in localities where majority of the clients are Hindus.

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Death Anxiety (Thantaphobia) Among Elderly: A Gender Study

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ABSTRACT

The present study was conducted on 120 elderly persons (60 males and 60 females) residing in the Pathankot city of Punjab state. Elderly who were above 65 years of age belonging to Hindu religion, retired from job or business, living with their spouses, not suffering from any chronic disease and having monthly income of Rs 10,000–20,000 were selected for the study. Death Anxiety scale by Chouhan and Tiwari (2003) was used to assess the death anxiety of the respondents. The results revealed that maximum number of females were having average level of death anxiety followed by high and low. Whereas in case of males maximum number was in average category followed by low and high. Significant differences existed among death anxiety levels of males and females.

Key Words: Death anxiety, Thantaphobia and Ageing.

Death anxiety (Thantaphobia) refers to fear and apprehension of one's own death. It is the neurotic fear of loss of the self, which, in intense state, parallels feelings of helplessness and depression. Man's awareness of his own death produces anxiety in him. Chouhan and Tiwari (2003) defined death anxiety as feeling of dread, apprehension

or solicitude when one thinks of what happens after death, the process of dying or ceasing to be.

Erikson's psychological theory, which states that people progress through a series of crises as they advance in age, suggests that in the later stages of life "ego integrity" is attained, i.e. a person finds meaning to and acceptance of his life. Erikson (1982) proposed that when a person reaches late adulthood he engages in a life review. If he finds meaning or purpose in his life, he has integrity. Older people who find ego integrity have lower death anxiety as compared to those with high death anxiety. According to Ernest (1973) "not only is death anxiety real, but it is people's most profound source of concern. This anxiety is so intense that it generates many if not all of specific fears and phobias people experience in everyday life".

Two influential theories dominated thinking about death anxiety and fear until the late twentieth century. Freud (1939) had the first say. The founder of psychoanalysis recognized that people sometimes did express fears of death. Nevertheless, thanatophobia, as he called it was merely a disguise for a deeper source of concern.

In another fresh approach, Tomer and Grafton (1996) proposed regret theory. Regret theory focuses on the way in which people evaluate the quality or worth of their lives. The prospect of death is likely to make people more anxious if they feel that they have not and cannot accomplish something good in life.

Death is a highly personal issue with its meaning varying from individual to individual. Everyone, must at some point, see death as a part of life. Therefore, accepting one's death, one's morality, is something everyone must have to face during his or her lifetime. Perhaps the most widely held attitude towards death is fear.

In other words as people live their life day to day, they suffer different degrees of death anxiety. Psychologists have attempted to understand what factors might affect the amount of death anxiety people feel. These factors include age, environment, religious faith and ego integrity, or a personal sense of fulfillment and/or self worth.

India is a home to one out of ten senior citizens in the world. The population of senior citizen in India is the second highest in the world.

This population, estimated to be over 80 million at present, is projected to grow to 124 million by 2020. According to a Survey conducted by Help Age India (The Tribune 1999) life expectancy of Indians was just 23 years in 1901, has risen to 70 years in the new millennium, mainly due to developments in medical science and better nutrition. Population experts predicts greater increase in the number of women of over 65 years of age by 2025 A.D. The number of such females worldwide is expected to be more than double, according to the latest projections made by US Census Bureau. Among the total elderly population, those who live in rural areas constitute 78 per cent. Sex ratio in elderly population, which was 928 as compared to 927 in total population in the year 1996, is projected to become 1031 by the year 2016 as compared to 935 in the total population. With reference to the above-mentioned details the present study was framed to assess death anxiety among elderly males and females.

Material and Methods

The sample for the present study consisted of 120 elderly women above 65 years of age residing in Pathankot city of Punjab State. They belonged to Hindu religion and retired from their job or business. Only those respondents were selected who were living with their spouses and not suffering from any deadly disease. There monthly income was Rs 10,000–20,000 were selected for the study. Questionnaire cum interview method was used to collect the data.

Tools

Socio Economic Status Scale by Bharadwaj (2001) was used to assess the socio economic status of the respondents. The scale assessed parameters like social status, educational status, professional status, property status (household assests, land holding, farm assests) and monthly income of the family.

Death anxiety scale by Chouhan and Tiwari (2003) This scale was used to assess the death anxiety of the respondents. The scale has been designed to assess the death anxiety among adult males and females. The scale comprised of 20 statements ranging from high to low.

Results and Discussion

The socio-personal characteristics of the respondents are systematically depicted by the data presented in Table 1 and had been discussed under the following heads:

Table 1
Socio Personal Characteristics of Respondents

S. No.	Characteristics	Male (n=60)	Female (n=60)	Total (n=120)
1.	Age (Years)			
	65-70	40 (66.66)	45 (75.00)	85 (70.83)
	70-75	10 (16.67)	10 (16.67)	20 (16.67)
	75-80	10 (16.67)	5 (8.33)	15 (12.50)
2.	Education			
	10+2	30 (50.00)	40 (66.67)	70 (58.33)
	Graduate	20 (33.33)	15 (25.00)	35 (29.17)
	Postgraduate	10 (16.67)	5 (8.33)	15 (12.50)
3.	Type of job			
	Business	20 (33.33)	0 (0.00)	20 (16.67)
	Service class	40 (66.67)	30 (50.00)	70 (58.33)
	House work	0 (0.00)	30 (50.00)	30 (25.00)

Age of the Respondents

Out of total 66.66 per cent of the male respondents were in age group of 65-70 years followed by 16.67 per cent in 70-75 years and 16.67 per cent in 75-80 years. In case of females 75.00 per cent of female respondents were in age group of 65-70 years followed by 16.67 in 70-75 years and 8.33 per cent who belonged to age group of 75-80 years respectively.

Education of Respondents

Data indicated that in case of males 50.00 per cent were educated upto the level 10+2 while 33.33 per cent were graduates and 16.67 per cent were postgraduates. In case of female respondents 66.67 per cent were educated upto 10+2 level where as 25 per cent were graduates and only 8.33 per cent were postgraduates.

Type of Job

It was noticed that majority of the male respondents i.e. 66.67 per cent were retired from service and 33.33 per cent from business. In case of females 50.00 per cent of respondents were retired from service while rest of 50.00 per cent were homemakers.

Table 2
Percentage Distribution of the Respondents Among Various Categories of Death Anxiety

S. No.	Levels of Death Anxiety	Male (n=60)	Female (n=60)	Z values
1.	Low	22 (36.67)	9 (15.00)	2.711*
2.	Average	31 (51.67)	26 (43.33)	0.914
3.	High	7 (11.67)	25 (41.67)	3.716*

*Significant at 5 per cent level.

Table 2 depicts the percentage distribution of the respondents among various categories of Death anxiety. Results showed that 47.50 per cent of respondents had average level of Death anxiety, 26.67 per cent had high level and 25.83 per cent had low level of Death anxiety. More number of males i.e. 36.67 per cent had low level of Death anxiety than females (15.00).

While 41.67 per cent females and 11.67 per cent males had high Death anxiety indicating that females feel more nervous on hearing anybody's death, cannot see anybody dying, become more tense at the sight of funeral and consider death as a terrific and heart thriving moment as compared to their counterparts.

Table 3
Differences in Mean Scores of Death Anxiety Among Males and Females

<i>Death Anxiety</i>	<i>Male</i>	<i>Female</i>	<i>t- value</i>
	Mean $\pm$ S.D.	Mean $\pm$ S.D.	
	11.25 $\pm$ 3.81	13.98 $\pm$ 3.73	3.97*

*Significant at 5 per cent level.

Table 3 indicates differences in mean scores of Death anxiety among males and females. Significant differences existed in the level of Death anxiety among males and females as calculated t-value was found to be 3.97. Females were found to be having more Death anxiety in comparison to males. This could be so that women might be evaluating death emotionally, whereas men might be doing so cognitively. The results were consistent with the findings of Hayman and spencer (1982) who also reported that females had significantly higher death anxiety scores than males.

Conclusion

Results indicated that that maximum number of females were having average level of death anxiety followed by high and low respectively. Whereas in case of males maximum number were in average category followed by low and high. Significant differences existed among death anxiety levels of males and females. Females were found to be having more Death anxiety in comparison to males. This could be so that women might be evaluating death emotionally and secondly elderly males are found to be more optimistic towards their lives as compared to elderly females and optimism is positively correlated with better coping strategies when faced with adversities.

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The Experiences of Ijaw Elderly Widows After Two Years of Widowhood in Yenagoa, Nigeria

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ABSTRACT

This survey study examines two years past widowhood experiences of 58 Ijaw elderly widows (average age 65.64 years), were purposely selected from 72 elderly widows (initial respondents), age varying from 62 to 80 years. The selected respondents were followed up for more than 2 years within the society in their various communities. Data were collected by using observation method and by standardized self-developed interview guide. The interview guide was assessed by six subject matter experts (SMEs) and eighty seven per cent of the (SMEs) agreed that the instrument was valid. It was found that the respondents complained about various problems such as heart related problems, chewing problems, eyes problems, hearing impairment, prostate/urinary tract problems. They also complained about psycho-social problems such as income, age, familiar care, fear, anxiety, neglect, problems of inheritance, frustration, degrading inhuman treatment coupled with in-law influence, remarriage, lack of nursing care and house problems. Care from nurses, good psycho-social support, health and conventional education enhanced the widow's health status to cope with widowhood experiences like remarriage, inheritance problems and

other widowhood rites. The health status of the respondents was affected positively by increased psychosocial support received by them and was also related to increase level of income (finance), easy accessibility to nursing care and age. In-laws increase the extent to which elderly widows accepted traditional widowhood rite. Health education also enhanced the ability of the majority of elderly widows to cope with the stress and experiences of widowhood.

Key Words: Elderly widows, Widowhood experience, Inheritance, Ijaw society, Psychosocial support.

In Africa, approximately 19 per cent of women aged 60 or over are widows (UN 2000). Bereavement (grief and mourning) is a social fact in any culture but reactions and practices relating to this vary from culture to culture (Fasoranti and Aruna, 2007).

Grief signifies the emotional response while mourning refers to actions customarily associated with grief, which can result from the loss of valued object and runs a constant course, modified mainly by the abruptness of the loss, the nature of the preparation for the loss, and the significance of the loss object to the bereaved. At this point, survivors feel stronger knowing that they have come through an ordeal. However, there are other cases in which the survivors find it very difficult to cope and adjust to their new status in life (Kubler-Rose, 1969).

Death is not only an end state to every individual, but it is also a phenomenon that put an end to a long standing relationship. Therefore, widowhood is a stressful phenomenon (Fajemilehin, 2000).

Widows across the globe share two common experiences: a loss of social status and reduce economic circumstances (Women, 2000). The health and psycho-social experiences of elderly women due to the loss of a partner may be devastating because of the decline in her psychological, physical and economic capability (Baron, Bryne and Kantowitz, 1980; Fajemilehin, 2003).

The loss of a loved one is a source of intense emotional stress, yet the bereaved need to express and deal with their feelings of loss before they can organize their lives (Fasoranti and Aruna, 2007). Normal grief often follows a fairly predictable pattern (Kubler-Rose, 1969).

Widow's socio-economic position is worse than married women's while simultaneously they manage their own households and have more resident children to care for. The relative poverty of older widows marginalized them from main stream society and increases their vulnerability to depression, ill health and violence (DESA, 2000). Although widows make up a significant proportion of the female population in all societies with a few laudable exceptions. Comprehensive research concerning their status in developing countries is lacking.

Widowhood and Inheritance Among the Ijaws

Among the causes of widowhood is age disparity between husband and wife which was noticed to be one of the reasons while some husbands die earlier than their wives due to old age. In Ijaw land, the leader of the family (extended family) would lead the delegation to the house and farm of their deceased kinsmen to divide his inheritance among the children, according to the number of children. Rooms\houses were not generally given to female children. The houses would be divided into number of wives that bore male child(ren). They only use the wives position within the house-hold to divide the properties for the children but they do not have any portion of the properties except through their male children, this is supported by Fasoranti and Aruna (2007). The widowhood experiences are generally a trauma but in some African societies, they are considered more as an experience of deprivation, subjugation and humiliation. Ironically, the disorganization and trauma that follows the death of a spouse seem to be greater on women than on the men whenever either loses his or her spouse.

Most men in patriarchal African rural communities are reluctant to empower their women folk by not educating them and not to allow them to know their rights related to widows inheritance. Widows are always used as a tool to subjugate them as well as a means of acquiring the deceased person's properties from widows under the disguise that the inheritor will protect and provide livelihood to them. When the property is squandered, they abandon them.

Widows inheritance is not seen as re-marriage, no dowry or new things are given to the widow's parents. Widow is only be inherited within the deceased's family if she (the widow) is well behaved or have children from her deceased husband, otherwise, she will be deprived from her husband's property and her children will be taken from her. But if she has only female child or children and is well behaved, she would be inherited and be allowed to bear male child(ren) for the deceased husband through his brother, and at times widow may be asked to re-marry the step son of her deceased husband.

In Ijaw land, once a widow has gone through the widowhood rites she can no longer do it again in her lifetime because it is only permitted once. But in most cases, if the new husband (the brother in law or the stepson) dies again, the widow would be chased out of the house and would be labeled to be one that has been responsible for the death of her previous husband and the current one and nobody within the family would like to re-marry such a widow.

Health and Psycho-Social Problems of the Elderly Widows and their Adjustment Strategies

Widows faced a lot of myriad of health and psycho-social problems such as hallucinations like feelings, hearing the voice and seeing the face of deceased husband, they could not sleep in the room alone again. Fasoranti and Aruna (2007) reported that in the beginning say about 3 weeks after the death of husband and it may continue for about one year. The survivor in this obsessive search for meaning, they may hallucinate the presence of the dead person, seeing the face, hearing the voice. But often one year or say beginning of at the start of the second year after the death, the survivors become more active socially, getting out of house more frequently, seeing people, and resuming their interests.

Other psycho-social problems widows faced within the first two years ranges from inheritance dispossession, widow inheritance, poverty, social constraint such as limited opportunities and restrictions on movements. Many widows expressed that they are still enduring the frustrating, dangerous, inhuman and degrading harmful practices in their culture under the cover of tradition just for the

protection of their children's right. In some cases, a widow could be asked to marry the junior brother of the late husband (Fasoranti and Aruna, 2007; Fajemilehin and Feyisetan, 2000).

In case a widow refuses such an offer, she would be disowned by the late husband's family and banned from inheriting any of the dead man's property while all the household properties would be carted away by the family members especially when the widow does not come from the town of the deceased husband (Fasoranti and Aruna, 2007). Kinsmen of the deceased husband usually believe that the husband owns all the valuables in the family home and kinsmen should have a control over these valuables after his death. The confrontation between the widow or her children and the kinsmen of her deceased husband usually stems from this belief (Fajemilehin and Feyisetan, 2000).

Neither the widow nor her children are allowed to participate in the meeting for distribution of family's property. During the meeting, the children of the deceased are only invited to witness the sharing of their father's property (Ogunbamila and Adeyanju, 2010). The widow of a deceased man is forced to marry her husband's younger brother so that he may re-born in the family (Okaba, 1997). It is believed that this is the way to re-connect the deceased with his wife (Ogunbamila and Adeyanju, 2010). Marriage, it is believed, is an everlasting bond between a man and a woman. It never ends even with divorce, if a widow re-marries and has a child from another man, the child will belong to her deceased husband (Fiberesina, 1999). Therefore, the widows are encouraged to re-marry the kinsmen of their deceased husband (Ogunbamila and Adeyanju, 2010). If a widow disagrees with the decision of the family, the widow would be subjected to humiliation and subjugation and is deterred for ever laying claims to personal properties of her husband, and they might link her as the cause of the death of her husband.

Egan and Arnold (2003) reported that fear (e.g. extreme shyness or rudeness that affect interpersonal relationships), temporary impairments in concentration, decision-making, and work performance as well as worry were typical psychological responses to death of life

partner. Physiological responses include elevated blood pressure, sleeplessness, headaches and abdominal pains. An elderly widow can begin to prepare for life without husband by adjusting to new responsibilities and developing new skills, therefore health adaptation during bereavement is more likely to occur (Ogungbamila and Adeyanju, 2010). Conclusively, some elderly widows derived pleasure and appreciate hearing friends tell of the good and special qualities that endeared the departed husband to them.

Objectives

The objectives of the study therefore were to:

1. examine how Ijaw people relate to their widows.
2. find out the roles of family members in the care of the elderly widow.
3. identify the psycho-social problems and coping strategies, methods the Ijaw widows adopt to adjust with their conditions after the death of her husband.
4. identify the effect of prompt communication with the elderly widow in adjusting to their new roles and plan for future.
5. determine the need to setup special health services in meeting out the health needs of the elderly widows.
6. ascertain how certain customary/traditional widowhood practices, rituals and custom of inheritance violate the rights of widows.
7. make recommendations aiming at the protection of widows from dehumanizing traditional widowhood rites.

Significance of the Study

The study provides knowledge about the experiences of elderly widows two years after the demise of their husbands. The knowledge of the experiences of bereavement, grief, mourning and problems of inheritance of widows coupled with social, psychological, economical and health problems have led to investigate into problems of widows.

Methods

The Setting of the Study

The study was conducted in four wards (male surgical, adult casualty, adult orthopedic and male medical) of a federal medical

centre in Yenagoa, Bayelsa state, Nigeria. This is the only federal health institution in Bayelsa state.

This study was two years follow up of post widowhood experiences of the Ijaw elderly widows belonging to various communities. The major languages of the subjects are Izon (ijaw), Epie, and Pidgin English. With the creation of Bayelsa state in 1996, there has been an upsurge in the population, estimated to be over 1 million residents (Dantoriti Ventures, 2007). For administrative convenience, Yenagoa was divided into three major state constituencies namely: Epie-Attisa, Gbarain-Ekpetiama and Okordia-Biseni-Zarama. The people of Yenagoa like any other Ijaw and Epie towns and villages are characterized by a similar cultural system, norms and value. Yenagoa was originally an agricultural community until 1996 when it became the headquarters of Bayelsa state, which made Yenagoa to be the major commercial city in the state (Dantoriti Ventures, 2007).

Design and Participants

The study was a survey; it followed an exploratory, descriptive design. To document the experiences of Ijaw elderly widows after two years of widowhood interview and observation techniques were used. About two and a half years ago, during the initial stage of study, 72 elderly widows were selected for the study. Out of the 72 initial respondents (elderly widows) were followed up for more than 2 years. 10 widows (13.89%) died within 2 years (7 elderly widows died within the first one year and 3 died between 1 to 2 years) 2 (2.78%) had relocated to unknown places and the remaining 2 (2.78%) refused to participate in the study. Finally 58 elderly widows participated in this study. The average age of the participants was 65.64 years with a range of 62–84 years. Forty-three (74.14%) respondents were in polygamous marriage, 15 (25.86%) were in monogamous marriage, 54 (93.10%) were Christians while 25 (43.10%) of them were self employed. Seven (12.06%) of the respondents had no formal education, 24 (41.37%) had primary education, 17 (29.31%) had higher education. Majority of the respondents 25 (43.10%) were farmers.

Tool Used

Interview schedule and observation methods were used to collect data. The interview guide or schedule consisted of four sections from

A to D. Section A contained 12 items to find out socio-economic status of respondents. Section B consisted of 18 items to assess the impacts of traditional widowhood practices, rites and inheritance of the elderly widows, and their coping strategies. Section C had 13 items that assessed the extent of prompt communication, the roles of nurses and family members in the care of the elderly widows. Section D comprised of 16 items to explore the psycho-social problems of the elderly widows and how Ijaw people relate to the widows. The questionnaire had 59 items all together.

Procedure

Permission was obtained from the head of the household of each widow and from the respondents. Confidentiality was assured to respondents before the data collection. The interview day and time was decided by each respondent in consultation with their family heads.

The respondents were interviewed separately. Each interview session lasted between 15 and 25 minutes with an average of 20 minutes. Data collection took 20 weeks.

Preparation of the Community

The researchers had visited each of the widows at least twice within the two years of widowhood (home visiting), this enhanced high response rate and co-operation from the elderly widows.

Data Analysis

Data were analyzed by using appropriate statistical techniques. Content analysis of the responses given by the subjects was carried out with the aid of a software programme.

Findings and Discussion

Within the first two years of widowhood out of 58 respondents, 33 (56.89%) remarried, 26 (44.82%) remarried with their deceased husband's brother while 7 (12.06%) divorced and remarried outside their deceased husband's family). 16 (27.58%) remained permanent widows, and refused to re-marry by staying in their deceased husband's home taking care of their children, while the remaining 9

(15.51%) were disowned and turned out from their deceased husband's house on the pretext of their refusal to marry the younger brother of the late husband or on the reason of inheritance. After some months of the death of husband, widow is inherited by one of her husband's brother or by an other male relative, this results in a relationship similar to re-marriage. The inheritor serves as a widow's sole legitimate sexual partner. According to Luo customs widows are not permitted to formally remarry or take other sexual partner in addition to the inheritor. This new partnership between the widow and her inheritor is not completely equated with marriage. Both the parties are supposed to maintain a few rights and obligations as wife and husband. (Potash 1968a; Potash 1968b; Ndisi, 1974; Kirwen, 1979).

As shown in Table 1, the common health problems encountered by the elderly widows were related to widowhood experiences which also include hypertension and heart related problems (17.3%) Chewing problems/difficulties in swallowing (16.3%), eye problems and hearing impairment (11.8%), diabetes (10%) and asthma/chest pain (6.4%).

Table 1
Common Health Complaints of the Elderly Widows

S. No.	Ailments	Frequency	Percentage
1.	Hypertension/heart problem	19	17.3
2.	Vulnerability to depression	8	7.3
3.	Pains e.g. back pain	17	15.5
4.	Asthma/chest pain	7	6.4
5.	Other ailments e.g. eye problem and hearing impairment	13	11.8
6.	Swelling of legs as a result of immobility	5	4.5
7.	Diabetes	12	10.9
8.	Prostate/urinary tract problems	11	10.0
9.	Chewing problem/difficulties in swallowing	18	16.3
Total		110	100.0

Respondents selected more than one ailment.

Table 2 presents the psycho-social complaint of the elderly widows. The elderly widow complained of psycho-social problems

such as harmful/inhuman widowhood rites (15%), widow inheritance and remarriage (11.2%), rivalry from the other wives of the inheritor (9.4%), loneliness, boredom and isolation (8.8%), problems of inheritance (8.2%), housing problems and single parenthood (8.1%), as well as economic constraints (6.2%) and restricted social freedom/hostility.

Table 2
Psycho-Social Complaints of Elderly Widows

S.No.	Psycho-Social Complaints	Frequency	Percentage
1.	Harassment from in-laws	8	5.0
2.	Loneliness/boredom/isolation	14	8.8
3.	Problems of inheritance	13	8.2
4.	Widow inheritance/remarriage	18	11.2
5.	Harmful/inhuman widowhood rites	24	15.0
6.	Less social freedom/hostility	9	5.6
7.	Rivalry from the real wives of the inheritor	15	9.4
8.	Marginalization from inheritors	14	8.8
9.	Economic constraints	10	6.2
10.	Housing problems/single parenthood	13	8.1
11.	Unemployment	9	5.6
12.	Poor social support	6	3.8
13.	The fear of being labeled	7	4.3
Total		160	100.0

Respondents selected more than one complaint.

Table 3
Widowhood and Inheritance Experiences of the Elderly Widows

S. No.	Categories	Frequency	Percentage
1.	Remarried their deceased husband brother or relation (inherited widow)	26	30.2
2.	Divorced and remarried outside their deceased husband family	7	8.1
3.	Remained as widow/refused to remarry (Uninherited widows)	16	18.6
4.	Disowned and turned out of the husband's house	9	10.5
5.	Less degree of autonomy	13	15.2
6.	Domestic violence as a result of remarriage	15	17.4
Total		86	100.0

Respondents selected more than one experience.

Table 3 revealed that 30.2 per cent of the elderly widows (inherited widow) remarried with their deceased husband's brother. Those who remained as widow and refused to remarry (uninherited widows) were 18.6 per cent, and 17.4 per cent widows faced domestic violence as a result of remarriage, 10.5 per cent disowned and turned out from the husband's house 15.2 per cent elderly widows felt very low degree of autonomy. The uninherited widows were those who were very old. Potash (1968a) has rightly pointed out that traditionally all widows are inherited, only a few women who rejected this practice were those who were unable to bear children because they have reached the stage of menopause.

Table 4
Respondent's Assessment of the Behaviour of the Deceased Husband Family/in-laws

S. No.	Categories	Frequency	Percentage
1.	Cared with much attention	19	32.8
2.	Cared with fair attention	11	18.9
3.	Care free/careless about	12	20.7
4.	No attention at all	16	27.6
Total		58	100.0

Table 4 revealed that respondents were divergent in their option and were consistent to the extent that two-third (32.8%) expressed that the deceased husband's family-in-laws cared them well. 12 (20.7%) of the elderly widows criticized their deceased husband family/in-laws over their care-free disposition and the welfare of the elderly widows.

From data presented Table 5 it may be said that the most significant of psycho-social and health promotion/maintenance strategy employed by elderly widows are visiting to friends and participation social gathering (18%), agreeing to in-law's wishes (17.1%), taking care of grandchildren (16.2%), taking good self care like personal and environmental hygiene (15.4%), good diet, medical check-up, prayer and physical exercise with respective percentage of 11.1 per cent, 9.4 per cent, 7.7 per cent and 5.1 per cent.

Table 5
*Psycho-Social and Health Promotion Strategies Employed
 by the Elderly Widows*

S. No.	Categories	Frequency	Percentage
1.	Prayer	9	7.7
2.	Good care (personal and environmental hygiene)	18	15.4
3.	Medical check up	11	9.4
4.	Exercise	6	5.1
5.	Good diet/adequate rest	13	11.1
6.	Agreeing to in-law's wishes	20	17.1
7.	Visitation and social gathering	21	18.0
8.	Taking care of grand children	19	16.2
Total		117	100.0

Respondents selected more than one strategy.

Table 6
*Frequency and Percentage Distribution of
 Blood Pressure*

S. No.	Blood Pressure Value (mm/Hg)	Frequency	Percentage
1.	Below 100/60	3	5.2
2.	100/60 110/60	10	17.2
3.	110/70 120/70	14	24.2
4.	120/80 130/80	13	22.4
5.	130/90 140/90	12	20.7
6.	Above 140/90	6	10.3
Total		58	100.0

The findings in Table 6 show that 6 (10.3%) respondents had abnormal blood pressure assessment, while the remaining 52 (89.7%) had normal blood pressure within the normal range.

Table 7
Frequency and Percentages Distribution of Visual Acuity of Respondents

S. No.	Visual Acuity Value	Frequency	Percentage
1.	6/36	5	8.6
2.	6/24	9	15.5
3.	6/18	19	32.8
4.	Below 6/18	25	43.1
Total		58	100.0

Table 7 revealed that 25 (43.1%) respondents had abnormal visual acuity assessment while the rest 33 (56.9%) had normal visual acuity.

Table 8
Influence of Community Women/in-laws on Widows over Traditional Widowhood Rites

Categories	F	%	DF	X ²	P
Very influential	22	55.17	3	39.25	0.001
Influential	17	29.31			
Uninfluential	5	8.62			
Very uninfluential	4	6.90			

The extent to which the community women/in-law influenced widows to accept traditional widowhood rites was also evaluated. As shown in Table 8 more than 55.17 per cent of the respondents reported that community women/in-laws strongly affected their acceptance of traditional widowhood rites. $\{x^2 (3) = 39.25, p < 0.001\}$. Widows realized that in-laws who wanted desperately to have access to the properties of the deceased were merely using them by inheriting them as wives. This was supported by (Fasoranti and Aruna, 2007 and MWIA 1998). In some African societies, a wife is perceived as a stranger among her husband's family. They are therefore, ready to throw her away like a useless appendage the moment her husband is dead, this often make widows to wallow in poverty and even sometimes a widow is also devastated by certain cultural practices which makes her to undergo certain degrading rites in the process of mourning the man (MWIA, 1998 and Fasoranti & Aruna 2007). The

traditional mourning and burial rites involving harmful and degrading treatment constitute gender-based violence. Widows are coerced to participate in these rites due to fear of losing status and protection and eviction from the family home, or their children will be taken from them (Women, 2000).

Table 9
Influence of Health Education on Widows in Coping with their Stress of Widowhood

<i>Categories</i>	<i>F</i>	<i>%</i>	<i>DF</i>	<i>X2</i>	<i>p</i>
Very influential	33	56.90	3	35.25	0.001
Influential	13	22.41			
Uninfluential	7	12.07			
Very uninfluential	5	8.62			

As shown in Table 9, health education significantly helped majority of the elderly widows to cope with the stress of widowhood. Ogunbamila and Adeyanju (2010) found out that health education highly influenced their (widows) ability to cope with traditional mourning rites. The findings of Fajemilehin and Feyisetan (2000) also verify that mourning rites are the most dreaded aspect of widowhood among African widows. Widows' welfare committees (2000) also posited that some rites such as cleansing ritual through sex when husband has died of HIV/Aids can be life-threatening as well as degrading. The scourges of Aids and relative awareness of the rites through health education, have also encouraged some widows to reject this practice. Ogunbamila & Adeyanju (2010) found that health education have developed some confidence in the widows and enabled them to face the post-grief future with renewed vigour. The above result reflects the position of women. DESA (2000) found out that African widows are among the most vulnerable and destitute women and may have no rights to ownership of her husband's property. As EWD (2003) supported that millions of widows in the third world, who are disinherited, evicted, victims of violence, poverty, properties grabbing and marginalization continues to remain outside the remit of all these laws. They struggle to survive without legal protection.

Table 10
Summary of Chi-square Showing Health Status and Psycho-social Support

<i>Categories</i>	<i>F</i>	<i>%</i>	<i>DF</i>	<i>X2</i>	<i>P</i>
Poor health/poor Psycho-social support	15	25.86			
Poor health/fair psycho-social	7	12.07			
Poor health/good psycho-social support	4	6.90	2	37.81	<0.001
Good health/poor psycho-social support	3	5.17			
Good health/fair psycho-social support	4	6.90			
Good health/good psycho-social support	25	43.10			

The result in Table 10 also indicates that 43.10 per cent of the elderly widows who received good psycho-social support, also reported good health. However, 25.86 per cent of those who had poor psycho-social support also experienced poor health $\{X^2 (2) = 37.81, p < 0.001\}$. The findings suggest that social status is conferred on women through a man, she herself becomes a non-entity and suffers a social death (DESA, 2000). But in some cases the elderly widows after remarriage to a family member have improved psycho-social support. Fajemilehin (2000) and Fajemilehin (2009) supported that elderly persons continuously living with spouse or any other familiar support are more likely to display positive health behaviour and in addition live longer. Social support reduced the risk of loneliness and social isolation.

Table 11
Summary of Chi-square Showing Income and Health Status

<i>Categories</i>	<i>F</i>	<i>%</i>	<i>DF</i>	<i>X2</i>	<i>P</i>
Low income/poor health	12	20.69			
Low income/fair health	6	10.34			
Low income/good health	3	5.17	2	28.59	<0.001
High income/poor health	5	8.62			
High income/fair health	4	6.90			
High income/good health	28	48.28			

Furthermore, elderly widow who earned higher income had improved health status than those with low income $\{X^2 (2) = 28.59,$

$p < 0.001$ }. Fajemilehin (2009) supported that income certainly, is the basic issue for the elderly. In addition, Feverstein (1997) found that poverty brings ill health, ill health brings poverty, and poverty attracts violence. DESA (2000) opined that women's low status throughout their lives is reflected in the poverty and isolation of widowhood when they become old. Widows' poverty is directly related to lack of access to economic resources, including credit, lands ownership and inheritance, lack of access to education and support services as well as the death of husband (DESA, 2000; Africanews, 1999).

Table 12
Summary of Chi-square Showing the Influence of Accessibility to Nursing Care on the Elderly Widows Health Status

Categories	F	%	DF	X2	P
Strongly affects	32	55.17	3	34.87	<0.001
Affects	15	25.86			
Do not affect	8	13.80			
Do not strongly affect	3	5.17			

It was revealed that the elderly widows accessibility to nursing care and health care facility enhanced their health status $\{X^2 (3) = 34.87, p < 0.001\}$. Women who lack access to health care and a vulnerability to violence are very likely to suffer not only physical ill health but stress and chronic depression also.

Table 13
Summary of Chi-square Showing Health Status and Age

Categories	F	%	DF	X2	P
Less than 72 years/poor health status	6	10.34	2	23.61	<0.001
Less than 72 years/fair health status	7	12.07			
Less than 72 years/good health status	25	43.10			
72 years and above poor health status	11	18.97			
72 years and above fair health status	5	8.62			
72 years and above good health status.	4	6.90			

To test whether age would determine the health status of the elderly widows it was found out that majority (43.10%) of widows

with good health status were less than 72 years of age while only 4.9 per cent of widows who were 72 years and above in age had good health status $\{X^2 (2) = 23.61, p < 0.001\}$. The finding revealed that the health status of the elderly widows is related to age.

Findings from this study revealed that majority of the widows were abandoned after the death of their husband both by their families and their deceased husband family members within the first three months of widowhood either as a result of being dependent due to poverty or as a result of old age since they can no longer be inherited and they were now seen as a liability. Rather than giving without receiving in the case of widows, people prefer and seek out relationships in which they give and receive more or less equal amounts of supports. Since most of these widows were idle within the 2 years. A discrepancy or imbalance in the exchange of support threatens the continuation of the relationship (EWD, 2003). These elderly widows experienced shame when asking for support outside of their close family. This is an expression of the need for home care and support. Fajemilehin (2000) posited that elderly persons continuously living with spouses or any other familial support are more likely to display positive healthy behaviours and in addition to live longer. The elderly widows who valued these African culture and norms of traditional familial care and were unable to receive were more depressed, showed more symptoms of ageing, were lonely, unhappy and were less likely to feel satisfied with their lives. Brauer, *et al.*, (2001) stated that wellbeing and satisfaction with the situation and the family are indicators of health. Most of the elderly widows within 2 years of widowhood were faced with lots of inhuman treatment with little care within the first three months of widowhood which latter diminishes. Roberts in Fajemilehin (2009) posited that the hidden part of caring reflects the care-givers intents to preserve a persons' integrity during dignity-stripping, painful and sometimes embarrassing situations. Reduction in familial supports for the elderly widows after the first three months of widowhood deprive them of African tradition benefits of extended family structure and had reduced the elderly widows family supports thus increasing the problems of isolation, frustration and loneliness among the elderly widows.

Implication for Nursing Practice

In Africa, loss of companionship upon the death of a spouse may be accompanied by reduction in financial resources, loss of caretaker and change in social status. Loss of spouse has different effects on men and women, mostly when the alive spouse is not gainfully employed.

The previous health educational practices in Nigeria have not prepared nurses to cope with the stresses and responsibility of their work, especially when the work involves death. The burden of this care falls on the nurses and their assistants who provide day-by-day service to these patients and their families (Ene, 1999).

The cultural taboos and negative stereotyping, lifestyle as well as the burdens of childcare may impede widows from attaining good health care and affects their health status negatively particularly in traditional societies where restrictions on life styles prohibit them from working in the public sphere.

Furthermore, in the context of HIV/Aids, African widows are particularly vulnerable. They may not be informed of the cause of death of their partners, or may not find out until they too became ill. Mourning rites may involve sexual relations with male relatives. Widows might be forced into levirate arrangement or a second marriage with an infected heir or brother-in-law, in addition, a widow may have spent all the families resources on health care for a dying husband and on the subsequent funeral, and as a consequence, may have no savings left to pay for drug in case she herself contract the disease (DESA, 2000). Health education must be provided to family members and people in the community at large concerning their behaviour toward elderly widows.

Recommendations

The policy makers should include widows' welfare in their budget and should also address the persistent gender inequalities in development and health of the widows.

Prompt decisions should be taken in the cases involving widowhood rites, delay in justice will not be able to protect widows' rights. The delay in preventing such situation will force the widow to undergo the very rite.

The government should increase the empowerment of women and widows through policy and education and work for the protection of the rights of widows. The already existing biased and violated widowhood rites that are the part of the customary law of many communities in Nigeria, especially those aspects of the law that infringe up on the human rights of widows should be addressed properly. The widows should group themselves together to form association for women empowerment to fight this inhumane aspect of their culture that deny them the rightful place in a dynamic environment. Government can bring this change through legislation and by encouraging the women to develop themselves educationally and career wise. Widows should know that elderly widows' right is about family rights.

Conclusion

The health and social experience of Ijaw elderly widows are mostly affected by income, age, familiar care, fear, anxiety, neglect, coupled with women/in-laws influence, lack of access to nursing care and housing problem. Nursing care, health education and conventional education are associated with increased health status and the ability of the elderly widows to cope with widowhood and old age. Elderly widows should also be engaged in activities that can make them earn so that they may stop worrying about the death of their husbands. Worrying over the death of husband may cause more misery, unemployment and frustration. The level of psycho-social support received by widows affects the health status of widows. It will also be helpful in their old age.

Lastly, provisions of financial assistance by government for the elderly widows would enhance their level of social support and will also increase their health status.

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Anasakti: Stress and Coping in Old Age

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ABSTRACT

The paper highlights the indigenous concept of Anasakti (ShrimadbhagwadGita) as a coping strategy for old age stress. The concept of Anasakti, having the virtue of religious, philosophical, individual and social significance, is based on the characteristic of man of steady wisdom who performs his duties for union with God. It has been found relevant for reducing stress. Anasakti as applied to adults' stress in modern society, suggests some useful ways to cope with life hassles. In the light of existing literature, present paper focuses on two questions, first is, what type of stress do older adults have to face, second is, how can they manage their stress with the help of Anasakti. The components of Anasakti have also been discussed.

Key Words: Stress, Old age, Coping strategy, Anasakti.

Stress is many faceted process that occurs in the reaction to events or situations in our environment and psychological reactions that different people have to the same event, some may interpret an event as stressful, whereas others simply take it in stride. Moreover, a particular person may react quite differently to the same stressors at different points in time.

Old Age and Stress

Old age is marked by the presence of a wide range of stressors. The older person is often subject to biological deterioration, social extrusion and economic deprivation. Evans (1984) draws on a number of studies to suggest that adverse life events occur more frequently in old age and that their occurrence causally increases the prevalence of illness in old age. There are number of factors cause powerlessness in the elderly. Contextual events that may render a person helpless and stressful include, being assigned a label that imply inferiority in relation to the other person, engaging in a consensually demeaning task, and no longer engaging in a previously reinforcing, valued task. Elderly people are the targets of many false labels, myths and stereotypes (Matteson & Mc Connell, 1988).

The social network also changes over the life span and is likely to be markedly different in old age in comparison with middle and younger adult years. For example, the elderly are typically separated from their children and face a shrinking support system with the demise of spouse, relatives and friends. The social network may also have different expectations and generate social pressures for the older persons that are different than those placed on the young and middle-aged (Schulz & Rau1988).

In his study Rollin, 1986 found that the ageing process involves general reduction in immunological competence. Adamec, 1990, Panksepp & Miller 1996 pointed out that the structure in the brain that mediate the experience of negative affect, the amygdala and limbic system, become more sensitive with age. The older adults' ageing body may magnify the adverse effects of each stress, even though they may not perceive the event as especially stressful. In reality an ageing immune system can make adults more vulnerable to the physical effects of stress.

Scientific literature reveals that people's health is also profoundly effected by prolonged negative emotions. Emotional disturbance are precursors of diseases such as peptic ulcer, hypertension, thyrotoxicosis, etc. The break down of adjustment caused by stressors leads to dysfunction of that defense mechanism which controls basic excitation and inhibition of the brain. Thoits (1984) rightly points out

that emotions have a central role; stressors, coping, support and psychological disturbance all involve emotional process. Thus it may be said that elderly persons have to face so many problems in their life that arouse stress in them and that stress may affect their mental health as well as physical health.

Old Age and Coping

There are some association between age and coping preference. In this light, age was presumed to be negatively correlated with problem focused coping and total number of coping responses.

In their study Folkman, *et al.*; (1987) found that across the range of stressful situation, older respondents used less face to face coping. They were less likely to utilize behavioral approach processes such as seeking social support, problem solving and defiant opposition. They were more likely to trust on cognitive approach (Positive reappraisal) and avoidance coping. Similar results were found by Irion and Blanchard- Fields (1987), indicating that older adults used less face to face coping in dealing with threat.

Folkman and her colleagues (1987) did comparative study on the coping responses of older and younger respondents. They found that older respondents consistently used more passive, intrapersonal, emotion focused coping responses whereas younger respondents were more likely to use active, interpersonal and problem focused coping.

However, older adults, in coping with health problems, tended to use confrontative coping more than any other response. Ory, *et al.*; (1992) clear this fact by their research that people who survive to advanced age readily engage in health protective behaviors and indeed may respond more positively than younger peers to instructions aimed at health promotion.

Overall, it is likely that older individuals are neither more or less mature than younger adults in their use of coping skills (Lau, W.K. 1994).

The Concept of Anasakti

Anasakti means freedom from both the attachment and aversion. It means one is neither attached to someone nor averse to it. *Anasakti* is transcendence of both attachment and aversion. *Anasakti* does not

mean that one has no desires, values or goals, it doesn't mean that one is not able to behave consistently in committed relationship such as marriage. Essentially *anasakti* means that one accept the ebb and flow of events in life without being psychologically dependent on any particular situation or outcome.

The literal meaning of *Anasakti* refers to 'detachment' but empirical scholars hold the view that word 'detachment' is very similar to separation, isolation and aloofness which distort the meaning of *Anasakti*, so the appropriate English literal meaning could be the 'Non-attachment' only (Pandey and Naidu, 1992).

The perfection with which the concept of *anasakti* has been articulated in the Bhagwad Gita is unprecedented. There in, *anasakti* qualifies the manner in which action ought to be performed; with a sense of duty, in the larger social interest.

According to Naidu and Pandey (1992, p. 3) *Anasakti* refers to an "intense though disinterested action, performed with a spirit of passion (1992, p. 3), without nurturing concerns regarding success or failure, loss or gain, likes or dislikes." The ultimate goal of *anasakti* is "self realization". Naidu and pande (1992, p.6) further describe the *Anasakti* philosophy as follows: " if the goal is fixed inwards, the emotional impacts of external success and failure are minimized and the consequences, good or bad, will be cognized as milestones on the path to self realization, rather than reflections of personal capabilities."

Pandey and Naidu (1992) cite studies showing that emotional and cognitive distraction can impede performance of the task; they suggest that adopting a focus on process rather than outcome may reduce distractions and lead both to superior performance and to lesser stress. They find in their study that those scoring high on a scale of *Anasakti* do in fact experience less stress and less strain in their dealing with difficult life events.

The Gita asserts that a *anasakt* individual remains established in a serene state, a state of mental poise. *Anasakti* changes the cognitive structure of people. It changes people's negative thoughts in to the positive thoughts and fill him/her with positive energy. Due to this a *anasakt* person perceive any situation in a different way and seeks

positive interpretation for every situation. Anasakt person perceive less stress than those who misinterpret the situation, highly concerns with outcome and extremely attached to material world.

When people remain stable in all situations and accept every thing unconditionally then they perceive less stress in any situation. They are not subject to paroxysms of negative emotions such as anger, anxiety, grief and depression. Failure, ignominy, loss, death and other vicissitudes of life do not toss them as they would toss those persons who attach to the gross sensory material plane of existence.

The Bhagvad Gita teaches that one who abandons all attachment to the results of his/her activities, satisfied and independent, engaged in all kinds of undertaking, yet not concerned with rewards involved, is truly happy. Similarly in Isa Upnishad, the necessity of engaging in continued activity is emphasized implying there by, that one should not renounce activity but only the mental attachment towards reaping personal benefits from them.

Shrimadbhagvad Gita says that action can be performed with excellence only when the actor has understood that his concerns lie only in action and not in the result, that action do not have a personal motive to serve and that these don't mean that he should resort to inaction.

If a person, who is emotionally stable and has no worry about outcomes, can apply himself to the task more efficiently while engaged in an important task, he will perhaps be less distractable and therefore will not commit major errors. Such a person can maintain greater emotional equipoise in the face of success and failure and can solve problems in a better way.

These conjectures, however, have empirical support. Zaffy and Burning (1996) suggest that anxiety causes individual to attend to fewer cues for problem solving. Easterbrook (1959) also suggested that "the number of cues utilized in any situation tend to become smaller with increase in emotion."

The intrusive cognition and emotional excitation seem crucial in reaction to stress. It can be argued that greater concentration and absorption in to the task at hand will eliminate task- irrelevant thoughts such as anticipations about the outcome. This will perhaps

result in task- excellence. On the other hand the emotional stability acquired through dissociation oneself from concerns regarding the outcome, will protect the individual from succumbing to the experiences of failure.

Now it is clear that *Anasakti* influences human thinking very effectively. It makes a person able to see the life in a optimistic way and seek positive interpretation for all events. Many studies show that positive life orientation is beneficial to health. In their study Brissette, *et al.*; 2002; Scheiever & Carver,1992; Smith & Williams, 1992 indicated that a highly optimistic individuals appear to attract supportive social relationships, use adaptive coping strategies, and have different health habits than pessimists, who tend to give up and turn away in stressful situations.

The concept of *anasakti* has been explored by Pandey and Naidu (1992). Various dimensions of *anasakti* described by Naidu and Pandey (1990) as follows:

- Effort orientation
- Emphasis on duty
- Absence of hedonistic compulsions
- Effort after excellence
- Emotional equipoise in success and failure
- Attention control
- Present orientation
- Lack of social approval/comparison
- Non attachment of material possession

In light of this, the doctrine of *abasakt* action seems to offer an important coping resource. In this context, therefore, it is being hypothesized that *anasakti* would be implicated in stress process.

How Anasakti as a Coping style

Several studies have suggested that coping styles undergo a natural development across the life span (Lau, W.K 1994). Here it seems that if the notion of *Anasakti* is practiced since very beginning it can be a good coping response at old age when the resources are limited. Hearing a religious base it can be highly sensitive tool in

Indian context. There are a few studies who have practically examined the effectiveness of *anasakti* in relation to mental health at younger and older people as well.

Pandey and Naidu (1992) found that *anasakti* has moderating effect on stress and strain.

Jaiswal (1993) has compare the concept of self-actualization and karmayoga and found that subjective and cognitive dimension of man of Bhagwad Gita is beyond self-actualization.

Kumar S. (2009) in an empirical study found that *Anasakti* significantly influence the level of aggression in adult subjects. *Anasakti* was also found to be significantly interacting with gender. The non-attached group was found to be critical to aggression and negative emotions.

Panchmukhi (2001) has analyzed distinguishing features of Bhagwad Gita Management Science in comparison with those of the Modern Management Science. It is found that Bhagwad Gita sets out many profound of management which are of great relevance.

Jaiswal and kumari Poonam (1999) reported a positive correlation between belief in karmayoga and mental health of high and low believers of karmayoga.

Tiwari and Shrivastva (1998) have explored that whether *Anasakti* and religiosity associate significantly with aggression and mental health. *Anasakti* did not correlated significantly with aggression and mental health. Religiosity correlated negatively with aggression but positively with poor mental health.

On the basis of above studies it may be concluded that doctrine of '*Anasakti*' conveys a message which is central to coping with life stresses. Ancient literature and recent studies also demonstrate that significance of cognitive and attitudinal systems determines the manner in which stress provoking situations are confronted (Pearline *et al.*, 1981).

Now it can be said that *Anasakti* is like a key of happiness by which people can open the door of healthy life. If the concept of *anasakti* is practically practiced by older people in real life than it will be easy for them to adjust in any situation and handle all positive and negative life events successfully.

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A Study on Educational Needs of the Elderly in Jaiñtia Hills District of Meghalaya

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ABSTRACT

Education and lifelong learning plays an important role in helping the elderly alleviate and address the multitude of problems and issues that are encountered by them through their life course. However, very little has been done in the field of research especially in the North-eastern region of India to address the learning and educational needs of the elderly. The present study attempts to identify and understand the needs of the elderly in the domains of coping educational needs, expressive educational needs and contributive educational needs. A sample of 160 elderly individuals was randomly selected from across the Jaiñtia Hills District of Meghalaya. Data was collected by using a structured interview schedule. Findings of the study show that the elderly expressed a desire to be educated and provided information about coping needs such as professional advice about health issues; availability and access to healthcare services; education on hygiene, nutrition, physical fitness, financial planning and also about skill development and counselling. A significant percentage of the respondents also expressed a desire to be educated on expressive needs involving literary, non-literary and leisure interests. Contributive Education such as political and social service involvement and participation is also an area where a large percentage of the respondents were interested in.

Key Words: Educational Needs, Elderly, Coping, Contributive, Expressive.

Education is not confined to any specific age or period. The book, entitled, "Learning To Be" by UNESCO (1972) has noted that education should extend throughout life, should not only be available to all but be a part of every individual's life, and should have as its aim both the development of society and the realization of man's potentialities.

That the need for education does not end at any specific age or any specific level of education or achievement is an undeniable fact. *Havighurst (1972)*, for example, has pointed out that learning is necessary throughout life because of continuously new developmental-task needs with age. Some of the greatest changes in life prompting continual adaptation and learning come with different life events such as retirement, death of spouse, declining health, etc.

'Adult Education has a role in helping older adults solve or overcome many problems we face as we grow older, such as income, security, health, retirement, bereavement, housing, loss of a recognized status and useful role, access to community services, maintaining relationships and establishing a satisfying quality and standard of life. Adult Education also has an important role in trying to ensure that the wisdom, experience and skills of older people are used to benefit the communities and societies in which they live'. (McCarthy, 1988).

Education as we all know has a very vast scope of meaning and interpretation. It encompasses a myriad of environments and activities that contribute to the continuous adaptation and development of an individual in ever changing circumstances. *Heimstra (1972)* however notes that, 'only infrequently are educational opportunities directed at real needs and goals of the elderly.' Instead, "we tend to place them in 'playpens' by providing recreation ... while doing almost nothing to furnish them with the means to keep mentally alert" (London, 1970). Therefore, the educational needs of the elderly cannot be viewed strictly from the literacy and formal education point of view since the elderly face different kinds of situations and challenges of adapting and developing according to the dynamics of internal and external circumstances that have a bearing on their development and well being. Instead, education of the elderly should necessarily incorporate those

elements that address their concerns and aspirations along with the objective of contributing towards their development, adaptation and overall well being.

There are a variety of educational needs that can be discussed relative to the older person. McClusky suggested several types of needs that education has a potentially powerful role to play in fulfilling: coping, expressive, contributive, influence, and transcendence (McClusky, ca. 1974).

On the basis of McClusky's Background Paper on educational needs of the aged, The 1971 White House Conference on Aging; identified four crucial educational needs of the elderly:-

1. Coping Needs: Needs that must be met to continue adequate social adjustment, psychological health and physical well-being.
2. Expressive Needs: Need to engage in activity for its own sake, activity that has intensive meaning and pleasure.
3. Contributive Needs: Need of older people to repay society in some way for some of its past generosity. Many older people feel that they need to serve in some way to help others less fortunate than themselves or to repay a past debt.
4. Influence Needs: Desire of older people to be able to affect the direction and quality of their lives.

Objective of the Study

The present study is an attempt to understand and identify the educational needs of the elderly, with special reference to those living across Jaiñtia Hills District of Meghalaya on the basis of the broad guidelines as suggested by the 1971 White House Conference on Aging.

Methodology

As this study will investigate the present situation with regard to the needs of the elderly across the Jaiñtia Hills District of Meghalaya in the domain of education, it will be classified as a Descriptive Research adopting the Structured Survey Method. A random sample of 160 elderly individuals residing across Amlarem, Khliehriat, Laskein and Thadlaskein Community and Rural development Blocks of the

erstwhile undivided Jaiñtia Hills District were selected for the purpose of this study. Data for the study was collected using a self constructed Interview Schedule.

Findings

General Profile of the Respondents

31.9 per cent of the respondents included for the purpose of the study were male and 68.1 per cent were female. More than half i.e. 58.8 per cent of the respondents selected for the study were in the 60–69 year age group; 32.5 per cent were between 70–79 years, 6.3 per cent were aged between 80–89 years and 2.5 per cent were above 90 years of age. With regard to Marital Status of the respondents; 41.9 per cent of them were currently married, 40.6 per cent were widowed, 14.4 per cent were separated/divorced and 3.1 per cent were never married.

More than half 53.1 per cent of the respondents in the study were illiterate. 24.4 per cent had primary education, 10.6 per cent had Middle level (upto class 9) education. 4.4 per cent of them were matriculates, 1.9 per cent had completed their higher secondary level, 3.8 were graduates and only one, i.e., 0.6 per cent was a doctor. Data on the occupational background of the respondents showed that 31.3 per cent were engaged in Agricultural work; 26.9 per cent (i.e. females) were engaged in taking care of domestic household work; 15 per cent were daily wage earners; 13.8 per cent were engaged in business. 8.8 were former government employees; 3.8 per cent had petty business and only 0.6 per cent i.e. only one of the respondents was a Doctor.

50.6 per cent of the respondents perceived themselves to belong to the middle income group. 41.9 per cent saw themselves as belonging to the low income group and only 7.5 per cent stated that they perceived themselves to belong to the higher income group. In terms of monthly personal income earnings as stated by the respondents themselves, 58.1 per cent said that they earned less than Rs 5,000 p.m.; 22.5 per cent earned between Rs 5,000 to 10,000 p.m., 10 per cent said that they earned between Rs 10,000 to Rs 15,000 p.m. 4.4 per cent were earning Rs 15,000 to 20,000 p.m. and 2.5 per cent each earned between Rs 20,000 to 25,000 p.m. and above Rs 25,000 p.m.

50 per cent of the respondents were currently living with their children only, with a majority of them living with their daughter(s) –

which is typical in the matrilineal society prevalent in the study area. 40 per cent stated they were currently living with their spouse and children. 5.6 per cent were found to be living alone, 2.5 per cent with relatives and only 1.9 per cent were found to be living with their spouse only.

Coping Educational Needs

Analysis of the data collected shows that a majority of the elderly who participated in the study expressed a desire to have access to Professional Health Advice on Common Age Related Diseases (66.3%); Professional Health Advice on Identifying Symptoms of Common Professional Health Advice on Age Related Diseases (64.4%); Professional Health Advice on Prevention of Diseases (86.3%); Professional Health Advice on Cures for diseases (84.4%); Professional Health Advice on Care and Control of long term illness (80%); Professional Health Advice on Awareness of age related diseases (58.8%) and Professional Health Advice on care of age related disabilities (81.3%). No significant difference was noted in the percentage of males and females with regard to the need for Professional Health Advice and information on the issues stated above.

With regard to the need for information and education on availability and access to healthcare facilities 84.3 per cent of males and 87.2 per cent females showed an interest in knowing about healthcare facilities available at nearby health centres. Information and knowledge about access to healthcare facilities at the district headquarters was desired by 94.1 per cent males and 85.3 per cent females. However, a lesser number of both males 47.1 per cent and females 61.5 per cent showed an interest in knowing about access to specialized healthcare facilities available at the state capital. Similarly only 52.9 per cent males and 44 per cent females desired to know about access to specialized healthcare facilities available outside the state. Both male 78.4 per cent and female 72.5 per cent were interested in knowing about the cost of using different kinds of healthcare facilities and also about the advantages and disadvantages of different healthcare facilities – (82.4% male and 65.1% female).

Education about maintaining personal and environmental hygiene was solicited by a large majority of the respondents. 71.3 per

cent indicated that they should be educated about importance of taking regular baths; 93.1 per cent said that they would like to learn about importance of wearing clean clothes; 88.1 per cent wanted to know about the importance of regular brushing, 82.5 per cent about the benefits of maintaining oral hygiene, 84.4 per cent about the benefits of regular dental checkups; 91.3 per cent about the importance of maintaining cleanliness inside the house and 92.5 per cent about the importance of maintaining cleanliness of their surroundings. No significant difference was noted in the percentage of male and female respondents in their need for education on personal and environmental hygiene.

Education and information on nutritional issues was sought by an overwhelming majority of the respondents with 100 per cent males and 98.2 per cent females expressing a need to know about the importance of taking a balanced diet. 96.1 per cent males and 87.2 per cent females were interested in knowing about nutritional supplements. 98 per cent males and 98.2 per cent females desired to know about the importance of adequate fluid intake. Similarly 94.1 per cent males and 91.7 per cent females showed an interest in knowing about the advantages of different food categories and 78.4 per cent males and 76.1 per cent females wanted to know about the disadvantages of different food categories.

Physical fitness is another area of health where the elderly respondents would like to be educated about with 60.6 per cent of the respondents wanting to learn about the benefits of physical activity; 61.3 per cent expressing a need to know about safe physical activities for the elderly to engage in; 58.8 per cent were interested in knowing about Importance of maintaining muscle strength and 70.6 per cent about the benefits of engaging in mental activities. Male female comparison on need for education on Physical fitness issues showed that there was no significant difference in the need for knowing about the benefits of physical activity between males 62.7 per cent and females 59.6. per cent. However, significantly more males 70.6 per cent than females 56.9 per cent wanted to know about safe physical activities for the elderly. 56.9 per cent males and 59.6 per cent females were interested in the Importance of Maintaining Muscle Strength and 66.7 per cent males and 72.5 per cent females were interested in knowing about the Benefits of Engaging in Mental Activities.

With regards to financial education, similar percentage of males 78.4 per cent and females 79.8 per cent were interested in education on managing their monetary savings, 72.5 per cent males and 64.2 females were interested in learning about avenues for investing surplus income while 68.6 males and 56.9 females wanted to learn about proper usage of banking facilities and services.

Data analysis on the perceived need for skill development in various economic activities, show that the respondents were interested in skill development in the fields of agriculture (77.5%), animal husbandry (68.1%), poultry farming (72.5%), fish farming (70.6%), handicrafts (61.3%), childcare (63.8%) and carpentry (55%). Skill Development in other activities such as horticulture (44.4%), floriculture (31.3%) and entrepreneurship (25%) were however not as popular amongst the respondents in the study. A larger percentage of males 78.8 per cent than females 67 per cent in the study indicated a need for skill development programmes targeted at the elderly. However, an almost equal percentage of males 86.3 per cent males and females 86.2 per cent said that no skill development programmes have ever been conducted in or near their places of residence. It was also found that a larger percentage of males indicated a need for skill development programmes in the areas of agriculture (82.4% males and 75.2% females), Animal Husbandry (80.4% males and 62.4% females), Poultry farming (86.3% males and 66.1% females), Fish farming (80.4% males and 66.1% females), Handicrafts (76.5% males and 54.1% females), carpentry (72.5% males and 46.8% females) and even childcare (80.4% males and 56% females).

Access to knowledge and information about the benefits of counselling in case of family bereavement (52.5%), dealing with financial issues (70.6%), dealing with terminal illness (65.6%), dealing with neglect by children (62.5%), dealing with loss of authority (48.1%), dealing with loss of economic activity/retirement (55.6%) and dying (51.3%) was also expressed as a need by a large percentage of the sample population as revealed by table 28 above. In the domain of need for counselling in dealing with psycho-social issues, a higher percentage of male expressed a need for counselling on financial issues (78.4% male and 67% female); dealing with terminal illness (74.5% male and 61.5% female) and coping with loss of activity (58.8% male and 54.1% females). A larger percentage of females expressed a need for

counselling in dealing with family bereavement (54.1% female and 49% male); coping with neglect by children (66.1% female and 54.9% male); coping with loss of authority (51.4% female and 41.2% male) and coping with death and dying (52.3% female and 49% male).

Expressive Educational Needs

With regard to Expressive Educational needs of the elderly, it was found that educational infrastructure was not available for a large majority of the respondents which is indicative of a largely rural society lacking in infrastructure. Also it was found that only about half (51.3%) of the respondents indicated a need for having educational infrastructure for the elderly. Another 55 per cent of the respondents perceived a need for regular adult education programmes and 55.6 per cent indicated a need for special educational programmes for the elderly. About two-thirds of the respondents wanted the educational programmes to be conducted free of charge.

56.9 per cent of the respondents were not interested in literary programmes whereas 43.1 were interested in literary programmes. Curiosity 27.5 per cent, learning new skills 31.9 per cent, knowledge 38.8 per cent and personal satisfaction 40 per cent were the reasons stated by those who were interested in literary programmes whereas being too old to learn 43.8, per cent. No energy 39.4, per cent, No money 33.1, per cent, No time 37.5 per cent and other more pressing responsibilities were stated as reasons by those who were not interested in literary programmes.

Religion (58.1%), Language (55.6%), Arts and Craft (51.9%), Economics (46.3%), Music (38.1%) and politics (30.6%) were some of the more popular traditional subjects of study that were of interest to the respondents of the study. Learning about Gardening 70.6 per cent, Cooking 58.1 per cent, Handicrafts 59.4 per cent, Travelling to tourist places 50.6 per cent, painting 38.1 per cent nature trips 37.5 per cent and Travelling to Religious places 36.9 per cent were some of the expressive educational needs of the respondents in leisure and personal interest activities.

Contributive educational needs

Data from the study also show that the elderly respondents were very much interested in being educated and encouraged to participate on Contributive and influence issues. 76.9 per cent of them expressed a desire to learn about community planning and development, 78.8 per cent wanted educational programmes on community planning and development, 73.1 per cent said that the elderly needed to be encouraged to take up community leadership roles, 70.6 per cent said that the elderly needed education on leadership skills and 67.5 per cent agreed that elderly should be encouraged to take up public issues of importance. More than half of the respondents were interested in starting something new in life (55.6%), starting a new career (51.9%), programmes to encourage the elderly to take up new careers (53.8%), participation in civic and public affairs (58.1%), education about the political process (50.6%) and education about participation in the political process (45.6%). However, the need to learn about participation in voluntary programmes for NGO's (45%), women organisations (46.9%) and youth development programmes (42.5%) was expressed by less than half of the respondents.

Analysis of data on contributive educational needs showed that more than two-thirds of both male and female respondents were interested in community development and planning. Male and female comparison indicated that both the sexes had a desire to learn about community planning and development and were interested in educational programmes on community planning and development. However, significantly more males than females were interested in education about starting something new in life (68.6% males and 49.5% female), taking up new careers (60.8% male and 47.7% female), education about political process (62.7% male and 45% female) and participation in the political process (60.8% male and 38.5% female), taking up public issues of importance (76.5% male and 63.3% female), education on leadership skills (78.4% male and 67% female) and being encouraged to take up community leadership roles 84.3 per cent male and 67.9 per cent female.

Discussion

Many scholars like Havighurst, 1972; Kimmel, 1974; Mason, 1974 and McClusky, 1974; have suggested that the elderly could use

additional educational opportunities in order to lead more satisfying and productive lives. However, available data (Oakes, 1971) show that few older people take advantage of the formal educational programmes that are offered.

Corroborating the above writers, the findings of the present study show that a large percentage of elderly are very interested in educational programmes that address their various coping needs such as the need for professional advice on health and healthcare; access to different kinds of healthcare facilities and related costs; personal and social hygiene, nutrition, skill development programmes and counselling on various issues that are relevant to their living a more productive and satisfying life.

Even though more than half (53.1%) of the respondents were found to be illiterate; a large percentage of the illiterate respondents expressed a desire to become literate. However, as pointed out by Oakes 1971, the data of this study also reveals that not many of the respondents' expressed an interest in formal literary programmes and traditional subjects of study. This is perhaps because many of the respondents selected for this study were illiterate and cannot fully understand and comprehend literary programmes and subjects.

The elderly in the study especially the males displayed a lot of interest in education that addressed their contributive and influence needs. A majority of them were interested and wanted to learn about community development and planning. They were also interested in learning about and being encouraged to take up public issues of importance, the political process and political participation, starting something new in life and taking up new careers, leadership, taking community leadership roles. These findings suggest that a large number of the elderly have a desire to make positive contributions towards the well being and development of the society in which they live in.

The findings of this study indicate that there is a need for planning and developing educational programmes that address the coping, contributive and influence needs and aspirations of the elderly so that they can continue to develop individually and also make positive contributions for their individual, economic and social well being. They must also be encouraged to take up expressive literary and non-literary activities that have a potential to further enhance their

skills and knowledge along with providing them with avenues to make productive use of their time and resources.

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