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OBITUARY

The members of executive committee of Indian Gerontological Association and the members of Editorial Board of Indian Journal of Gerontology, extend heartfelt condolences on the sad demise of Professor Hari Shankar Asthana (former Professor of Psychology and V.C. of Sagar University, M.P.) and Professor Rajendra Swaroop Bhatnagar (Former Professor and Head of the Department of Philosophy, University of Rajasthan, Jaipur).

Professor H.S. Asthana (24th August 1922–7th October 2019) was associated as a member of consulting editor since the inception of Indian Journal of Gerontology.

Professor R.S. Bhatnagar (1.1.1933–6.11.2019) was the president of Indian Gerontological Association since 1990. He was also a member of the board of consulting editors of Indian Journal of Gerontology.

We pay our deepest respects to the departed souls and pray for the Almighty to grant them ever lasting peace.

A Tribute to Late Professor Hari Shanker Asthana

Hari Shanker Asthana was born on 24th August, 1922 in a well to do family settled in Lucknow. His father was a professor of Chemistry at Lucknow University, from where Hari Shanker Asthana received his master's degree in Philosophy (1944) and Ph.D. in the year 1950. The topic of his Ph.D. thesis was on 'Theories of personality', which covered both Indian and Western theories of personality. It is important to point out that his work on theories of personality was seven years prior to the famous book on *Theories of Personality* by Hall and Lindzey.

At the very beginning of his career as a lecturer in the department of philosophy at the Lucknow University in 1944 he moved to teaching of psychology and received training in various branches of psychology from Prof S.N. Dasgupta and Prof. Kali Prasad at Lucknow and from other eminent psychologists of that time. Twice he was awarded US Fulbright fellowship to study psychology in Chicago and Harvard universities respectively. During his impressive career, Dr Asthana had close interaction with many well-known psychologists such as Gordon Allport, Boring, Thurstone, George Miller, Hadley Cantril, Ralph White, and could participate in Wolfgang Kohler's experiment on perception in a tilted room. He was also associated in learning with eminent anthropologist - Cora du Bois and Margaret Mead. Whenever he got opportunity to meet eminent psychologists of India or abroad he tried to learn not only the subject matter but also skills of designing experiments and developing instruments to handle the research problem at hand. These skills helped him to develop psychology laboratories at University of Lucknow and then later at Sagar University.

Professor Asthana, was always keen to share with his students his profound knowledge and learning enriched with wide experience of working with well-known psychologists of Western Universities.. He encouraged and helped his Ph.D. scholars at Sagar University in the development of new instruments for experimental psychology such as: leaf room to study temporal course of perception, (I.S. Muhar), an apparatus for the study of Auditory noise and signal detection (A.K. Purohit), computer programs and head-phones to the study of selective processing of unattended message (H.K.Tiwari), Experiments on selective attention (G. Namdev), Automatic processing in Dichotic listening (Indu Prabha Tiwari) and dolls representing different labelling to study the 'The problem of labelling in the psychology of conservation (Leena Chatterjee). Some of his Ph.D. scholars worked on political psychology e.g. on International Images of Structural Balance (Nirmala Pandey) and Distribution of Values in Society - Political representatives,

Administrators, students and general public (P.K. Srivastva) ; Tribal children-the processes of acculturation (Veena Dubey);

Cross cultural study of Nepalese Gerung (M.P. Regmi). On the whole it reflects his brilliant integration of theoretical, experimental, cognitive, psychometric, psycho-physics, personality psychology, phenomenology, social psychology and counselling techniques.

He developed a centre of neuropsychology and counselling in Sagar University of which he remained director even after his superannuation for several years. He also developed animal laboratory in the department and reared white rats for the training of PG students. The present author is fortunate to complete his M.A. dissertation on "Effects of Stimulant and Depressant drugs on the pattern discrimination learning by albino rats."

Prof. Asthana was an erudite scholar with passion for reading and research. He was a eloquent teacher and motivated his students to read further on a topic from the books in the library. Socialized in Lucknow University department of psychology's traditions Prof. Asthana had a peculiar style of commenting on any draft written by a student. He would never directly say that it is all non-sense/rubbish etc., rather make a question mark (?) at two three places and ask you to review it again. His help was thus very indirect and left enough space for one to grow oneself. When he would be satisfied he would just say 'this is what was needed'. He was against the academic dependency of the students but never explicit to the students who had to judge on their own. Prof. Asthana used to say that until and unless you are sure that you have added something to the existing literature, don't publish, otherwise the idiom-*publish and perish* - will apply on you. He himself has shown this in his own publications in various Journals, chapters of books and in his books.

His love for reading (carefully and reflectively) remained constant even at the age of 93 Years. In response to one of my e-mails in July 2014 he wrote ... 'At 93 with God's grace I have no major problems. I remain a student (once a student-teacher, always a student!); I keep busy in reading Drafting a paper on Fechner (as the founder, not Wundt!). And another on Wundt (mistranslated, misinterpreted, incompletely reported, a victim of cultural clash whose body (as one has written- must turn in its grave many times over!' These papers were subsequently published in psychological Studies.

Achievements/Awards of prof. Asthana

Head department of Psychology, Lucknow (1962); Sagar (1963-1983); (Gorakhpur, 1966-1967).

Honorary Director Centre for Neuropsychology and Counselling (1983-85).

Convenor-National Panel of Psychology UGC from its inception to 1985. He Advisor for Social sciences M.P. Council for Science and Technology (1983-1986) Consultant RDSO for quite some time in

Railway Ministry Government of India. UGC National Lecture Award 1976.

Fulbright Fellow Chicago University (1950-51).

Fulbright Fellowship at Harvard University (1965-1966)

Visiting Professor at George Town University Washington, D.C. during 1966. Moreover, he also availed Hays, Smith-Munds, award, Commonwealth Foundation Awards and could visit Psychological laboratories and institutions in Europe, (Geneva, Paris, Moscow, London, and Birmingham), Hong Kong, Japan, UCLA (Berkeley) MIT Uni. - Chicago, Michigan-Ann Arbour and other places.

The Mayor of the city Baltimore USA awarded him Honorary Citizenship Sir H.S.Gaur Memorial Award for Social Sciences from M.P. Government (1987), S.P. National Psychological Award (1986), Platinum Jubilee Lectureship Award Indian Science Congress (1990), Fellow National Academy of Psychology (1994), Special Felicitation Award GuruKul Kangri University (1994), S.C. Mitra Memorial Award- Asiatic Society, (2004) and Distinguished Alumnus Award University of Lucknow (2006)

The loss of such a renowned psychologist on 7th October 2019 has been deeply mourned by the fellow psychologists of universities all over (in India, U.S.A. and Europe) where he taught and delivered lectures and had visited in different capacities.

May God grant eternal peace to his soul and console his family members to bear the irreparable loss.

U.C. Jain, Ph.D.

Former Professor and Head,

Department of Psychology, Barktullah University, Bhopal (M.P.)

Former V.C. ABS University, Rewa (M.P.)

Editor, Indian Journal of Gerontology (Social Science Section)

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Declaration

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Calcium, Phosphate and Related Hormonal Profile in Male and Female Senior Citizens of Bangalore City

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ABSTRACT

This study was undertaken to estimate the extent of deficiency of Calcium, Phosphate, Vitamin D and parathyroid hormone in both male and female senior citizens of Bangalore city. 80 elderly persons (females 47 and males 33) of 60 years and above, who met inclusion and exclusion criteria, were selected after obtaining the ethical clearance. Written informed consent was taken from them. General physical examination and systemic examination were done, and anthropometric measurements were taken. Demographic characteristics, past medical history, medications and dietary intake were collected via questionnaires. 5 ml of venous blood sample was collected for serum analysis and estimation of serum Calcium, serum Phosphate, serum 25(OH)D and serum parathyroid hormone. Serum Calcium was estimated by Arsenazo III method, serum Phosphate by unreduced phosphomolybdate method and serum 25(OH)D and serum parathyroid hormone by Chemiluminescent Immunoassay, and all

the results were statistically treated. The findings of this study revealed that there were normal serum levels of Calcium and normal serum levels of Phosphate, but decrease in serum levels of 25(OH)D and increase in serum parathyroid hormone levels were found in both the male and female study groups. When compared with male study group, females had significant decrease in serum 25(OH)D levels with P value of 0.048 and significant increase in serum parathyroid hormone levels with P value of 0.042. It may be concluded that the senescence accompanied by increased serum PTH and decreased serum 25(OH)D levels has maintained normal serum Calcium levels. Senescence and post menopausal combined effect has caused significant changes in females.

Key words: Calcium, Phosphate, Vitamin D, Parathyroid Hormone, Ageing, Serum.

Ageing is defined as gradual, insidious, and progressive decline in structure and function (involving molecules, cells, tissues, organs) that begin to unfold after the achievement of sexual maturity (Caruso and Silliman, 2008). Old age is regarded as a normal, inevitable physiological phenomenon (Park, 2008). Government of India defined "Senior Citizen" as persons of age 60 years and above while adopting national policy on older persons in January 1999 (Jeyalakshmi *et al.*, 2012). Between 2000 and 2030, the number of older adults worldwide is expected to increase from 420 to 974 million (*ibid.*). India has around 100 million elderly at present and expected to increase to 323 million, constituting 20 per cent of the total population by the year 2050 (United Nations Population Fund, 2012).

Adequate nutrition is fundamental to healthy ageing. Energy requirements decrease with age due to decline in lean body mass and decreased physical activity and slowed rates of protein turnover. Despite this decrease, older adults are at risk of under nutrition due to medication side effects, functional, visual, or cognitive impairment, oral disease, swallowing disorders, or loss of smell/taste, depression and social isolation, and chronic illnesses. Although vitamin requirements do not change with age, older adults are particularly prone to inadequate intake of Vitamin D, Vitamin B12 and Calcium and are also associated with reduced Calcium and Vitamin D absorption (Caruso and Silliman, 2008).

Although calcium intake is often inadequate in ageing, progressive deficits in renal and intestinal function impair whole body calcium economy during normal human ageing (Gardner and Shoback, 2007). These deficits include progressive insufficiency of Vitamin D production by the skin as well as declining ability to convert 25(OH)D to 1,25-(OH)₂ D in the kidney. Calcium and Vitamin D deficiency related clinical consequences include Osteoporosis, Osteomalacia, Neuromuscular dysfunction and spontaneous fractures (Staud R, 2005; Caruso and Silliman, 2008). Falls related to neuromuscular dysfunction are the largest single cause of injury related deaths in elderly people. Vitamin D is a major regulator of Calcium absorption. Low Calcium and low Vitamin D stimulates Parathyroid causing secondary Hyperparathyroidism which may increase the risk of fractures (Chapuy, *et al.*, 1987). High levels of Serum Phosphate in the setting of overt HyperPhosphatemia and Vitamin D deficiency are both associated with adverse cardiovascular outcomes and Osteoporosis (Tonelli *et al.*, 2005).

Osteoporosis has been universally associated with ageing process (*ibid.*). Osteoporotic fractures are a major public health problem for older women and men (Gardner and Shoback 2007). At any age, women experience twice as many osteoporosis-related fractures as men, reflecting gender-related differences in skeletal properties as well as the almost universal loss of bone at menopause (*ibid.*). In Postmenopausal women, the two major causes of bone loss are estrogen deficiency after menopause and age related process. The rate of bone loss is more rapid in post menopausal women due to estrogen deficiency and thus attributing to greater frequency of bone fractures among older women (Qureshi *et al.*, 2010).

Hence there is a need for a study to estimate extent of deficiency of Calcium, Phosphate, Vitamin D and Serum Parathyroid hormone levels in senior citizens of Bangalore city, a group which belongs to Indian genetic stock, and is genetically different from the stock of subjects studied in reviewed literature and also to find out, in particular, the effect of menopause in addition to Geriatricity in females compared with males. This study is also important to educate the senior citizens regarding the nutritional importance of these parameters which should be estimated them at regular intervals.

Objectives

1. To estimate Calcium, Phosphate, Vitamin D, Serum Parathyroid hormone levels in both male and female senior citizens of Bangalore city and compare it with normal levels.
2. To compare Calcium, Phosphate, Vitamin D, Serum Parathyroid hormone levels in senior male and senior female citizens.

Materials and Methods

This study is a prospective comparative study which intends to estimate Calcium Phosphate and related hormonal profile in male and female senior citizens of Bangalore City.

After obtaining the ethical committee clearance, 80 elderly healthy subjects were recruited from Nightingale's Sandhya Kirana, an old age home of Bangalore City. Subjects who were more than 60 years, Possessing verbal communication skills, who gave informed consent were included. Subjects with Hepatic disorders, Renal Disorders, Parathyroid disorders, On Calcium or Vitamin D Supplements, Non cooperative patients, Osteoporosis and Other bone related disorders were excluded from the study.

The study was done for three months during the months of June to August, which is neither winter nor summer in Bangalore. After explaining the entire procedure, all the subjects gave their written informed consent. If the subjects were unable to read or write, their family gave their consent. After obtaining the written informed consent, general physical examination and systemic examination was done. Demographic characteristics, past medical history, and use of medications were collected via structured questionnaire . Height measured to nearest 0.5cm on wall mounted stadiometer and weight to nearest 0.1kg on a standard weighing scale with subjects dressed in light clothing and no shoes. BMI calculated using Quetlet's index [$\text{wt (kg)}/\text{H (m)}^2$].

Each subject completed a Interviewer-administered 24hr Dietary Recall questionnaire , from which the daily consumption of energy and Calcium was derived.

All subjects were instructed to be fasting for 12 hours. Around 5ml of venous blood sample was collected in anti-coagulant pre treated vacutainers under standardized condition from 7am to 8am via venipuncture by well trained registered personnel and the samples were stored at 4 degrees centigrade, and was immediately centrifuged, and sent for serum analysis.

Serum analysis of Calcium, Phosphate, parathyroid hormone, and Vitamin D was estimated in the laboratory of Victoria Hospital attached to Bangalore Medical College and Research Institute. Serum Calcium was estimated by Arsenazo III Method. Serum Phosphate was estimated by Unreduced Phosphomolybdate method. Serum Parathyroid Hormone was estimated by fully automated ChemiluminiscentImmuno assay. 25(OH)D was also estimated by fully automated ChemiluminiscentImmuno assay.

Table 1

Table Summarizing The Description of Serum Parameters, Methods and Type of Instruments Used in Serum Analysis

Blood Parameters	Units	Technology	Machine name	Methodology	Sample Type	Volume	Fasting
1 Phosphorus	mg/dl	PHOTOMETRY	OLYMPUS	Unreduced Phosphomolybdate method	Serum	1ml	Fasting
2 Calcium	mg/dl	PHOTOMETRY	OLYMPUS	Arsenazo III Method, End Point.	Serum	1ml	Non Fasting
3 Intact Parathyroid hormone	pg/dl	C.L.L.A	ROCHE	Fully automated Chemiluminiscent Immuno assay	Serum	1 ml	Non Fasting
4 25 (OH) Vitamin D(Total)	ng/dl	C.L.L.A	CENTAUR	Fully automated Chemiluminiscent Immuno assay	Serum	1 ml	Non Fasting

The Statistical software namely SAS 9.2, SPSS 17.0, Stata 10.1, MedCalc 9.0.1, Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables, etc.

Results

This study is a prospective study which intends to estimate Calcium Phosphate and related hormonal profile in both male and female senior citizens of Bangalore City. Serum Calcium levels, Serum Phosphate, Intact PTH and Serum 25(OH) D levels of all the subjects were compared with normative data and Serum Calcium levels, Serum Phosphate, Intact PTH and Serum 25(OH) D levels were compared between males and females so obtained.

Baseline characteristics of the participants: The baseline characteristic of the participants is shown in Table 2.

Age and Gender: Age distribution of participants studied is shown in Table 2. The Mean \pm SD age of subjects ranged from 65 to 91 years with a mean age (\pm SD) of 69.31 (\pm 8.13) years. The subjects consisted of 47 females (59%) and 33 males (41%).

Demography and Gender Distribution

Table 2
Average Age of Subjects, Gender Distribution and BMI

	<i>Count</i>	<i>Average Age (Years)</i>	<i>Average BMI</i>
Female	47	69.72 \pm 9.25	26.78 \pm 6.87
Male	33	68.72 \pm 6.29	23.90 \pm 5.48
Overall	80	69.31 \pm 8.13	25.59 \pm 6.46

Results are expressed as Mean \pm SD

The BMI of subjects ranged from 14.46 to 52.36. Both males and females had BMI within WHO said limits of Normal to Overweight category. None of them were obese.

The dietary Calcium intake of all the subjects was 978 mg per day. The energy intake from 24hr diet was 1810 kcal per day.

Vitamin D intake was negligible through food., even in the non-vegetarian group of subjects, as they hardly consumed non vegetarian food.

*Mean Serum Levels of 25(OH)D, PTH, Calcium and Phosphorus
25-OH Vitamin D Levels*

Table 3
*Comparison of 25(OH)D Levels of Male and Female Study
Groups with Normal Values*

	<i>Normal Range (ng/ml)</i>	<i>Sample Range (ng/ml)</i>	<i>M ± SD</i>	<i>Median</i>	<i>P-Value</i>
Males	30-100	8.45-28.13	14.63 ± 5.16	14.2	0.0478*
Females	30-100	4.1-21.95	12.72 ± 4.68	11.83	

Results are expressed as Mean ± SD

Overall both the male and female subjects had serum 25(OH)D levels lesser than the normal lower limits and when compared between the groups females had significantly lesser mean serum 25(OH)D levels with P value < 0.05.

Intact Parathyroid Hormone Levels

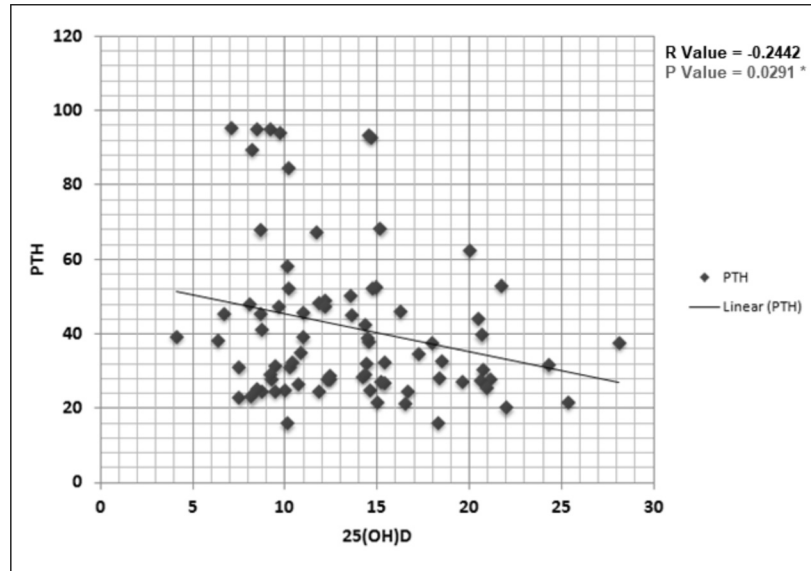
Table 4
*Comparison of Intact Parathyroid Hormone Levels of Male and Female
Study Groups with Normal Values*

	<i>Normal Range (pg/ml)</i>	<i>Sample Range (pg/ml)</i>	<i>M ± SD</i>	<i>Median</i>	<i>P-Value</i>
Males	15-65	16.05-68.37	37.41 ± 14.62	32.51	0.0425 *
Females	15-65	20.28-95.49	44.92 ± 23.82	39.18	

Results are expressed as Mean ± SD

Overall male subjects had serum PTH levels within normal range, although individual highest value was towards higher side. The PTH levels of female group too was within normal range, although some individual highest values were above the normal range. When compared between the groups, females had significantly higher mean serum PTH levels with P value < 0.05.

Graph 1
Correlation between Vitamin D and PTH



Graph 1 shows the correlation between serum intact parathyroid hormone and serum 25(OH)D levels. The negative correlation between Serum intact parathyroid hormone and Serum 25(OH)D being mildly significant establishes that as and when Serum 25(OH)D level has decreased, the Serum PTH has increased., but being slightly towards normal side.

Calcium Levels

Table 5
Comparison of Serum Calcium Levels of Male and Female Study Groups with Normal Values

	Normal Range (mg/dl)	Sample Range (mg/dl)	M ± SD	Median	P-Value
Males	8.8-10.6	8.8-9.86	9.36 ± 0.25	9.38	0.16
Females	8.8-10.6	8.47-9.75	9.29 ± 0.32	9.28	

Results are expressed as Mean ± SD

Overall both male and female subjects had serum Calcium levels within the normal range. When compared between the male and female groups, there was no significant difference in the serum Calcium levels (P value is greater than 0.05)

Phosphorus Levels

Table 6
Comparison of Serum Phosphorus Levels of Male Study Group with Normal Values

	<i>Normal Range (mg/dl)</i>	<i>Sample Range (mg/dl)</i>	<i>M ± SD</i>	<i>Median</i>	<i>P-Value</i>
Males	2.5-4.8	2.20-5.00	3.33 ± 0.68	3.33	0.3757
Females	2.5-4.8	2.34-5.43	3.38 ± 0.70	3.33	

Results are expressed as Mean ± SD

Overall both male and female subjects had serum phosphorus levels within the normal range. When compared between the male and female groups, there was no significant difference in the serum Phosphate levels (P value is greater than 0.05)

Discussion

Healthy ageing has become a growing global challenge. Both number and proportion of older persons, defined as aged 60 and over, are growing virtually across all countries, and worldwide trends are likely to continue unabated.

The process of ageing also affects nutritional needs, the aged are particularly prone to inadequate intake of Calcium and Vitamin D. Progressive deficits of renal and intestinal functions impair Calcium economy. Declining ability in production of 25(OH)D and conversion of 25(OH)D to 1,25(OH)₂D leads to Calcium and Vitamin D deficiency and its related consequence of osteoporosis.

Osteoporosis is a major cause of disability and death among the elderly. Women are at a greater risk because of estrogen deficiency at menopause leading to accelerated bone loss.

Hence this study was undertaken in order to estimate extent of deficiency of Calcium, Phosphate, Vitamin D and Serum Parathyroid hormone levels in senior citizens of Bangalore city, a group which

belongs to Indian genetic stock, and is genetically different from the stock of subjects studied in reviewed literature and also to find out, in particular, the effect of menopause in addition to geriatricity in females while comparing to males. This study is also important to educate the senior citizens regarding the nutritional importance of these parameters and estimating them at regular intervals.

In this prospective study, 80 elderly citizens of age more than 60 years who met the inclusion and exclusion criteria were recruited for the study after obtaining the ethical committee clearance. Serum Calcium, serum Phosphate, serum 25(OH) D and serum parathyroid hormone were estimated and all the results were tabulated, statistically treated and expressed in appropriate graphs and tables.

Table 2 shows the age distribution of the study group. The average age of subjects was 69.31 (± 8.13) years. The average age of male study group was 68.72 (± 6.29) years and average age of female study group was 69.72 (± 9.25) years. There were 47 females (59%) and 33 males (41%).

Wortsman *et al.*, in their study have proven that Vitamin D bioavailability is affected by obesity. Table 2 shows the average BMI of the subjects which was 25.59 (± 6.46) kg/m². The average BMI of female subjects was 26.78 (± 6.78) kg/m² whereas the average BMI of male subjects was 23.90 (± 5.48) kg/m². Both the groups were not obese thus nullifying one of the confounding factors that would have affected this study.

Regarding the dietary habits of the subjects, there were 46 per cent non vegetarians and 54 per cent vegetarians in the study. All subjects consumed the same diet every day. The average Calcium intake was 978mg/day which meets the Required Dietary Allowance for adult Indian males and females (Suresh and Chandrasekhar, 2012). Vitamin D intake was almost negligible through vegetarian food. Moreover the non vegetarians in the group hardly consumed any non-vegetarian food.

Serum Vitamin D levels

Table 3 shows comparison of serum 25(OH)D levels of male and female study groups with that of normal serum levels. The male study group had less than the lower limit of normal serum 25(OH)D range

of (30–100ng/ml). The female study group also had less than the lower limit of normal serum 25(OH)D levels. However, female study group had significantly less mean serum 25(OH)D levels than that of male study group.

Several previous studies like Fradinger *et al.*, and Holick MF *et al.*, have reported low serum 25(OH)D levels in the older population. Older adults are at a risk of lower Vitamin D due to decreased cutaneous synthesis, decreased dietary intake, and decreased intestinal absorption (Holick, *et al.*, 2005; Holic, 2010, 2011). In this study the dietary intake of Vitamin D was negligible. This was in accordance with study done by Omdahl *et al.* With advancing age, a gradual Vitamin D deficiency becomes evident (Chapuy, *et al.*, 1983; Chapuy *et al.*, 1987; Boonen *et al.*, 1996; Boonen *et al.*, 2006). This is due to a reduction of the concentration of 7-dehydrocholesterol in the epidermis, typical during aging, and to a consequent decrease of synthesis under UV irradiation (Holick 2010, and 2011). On the other hand, a decreased exposition to UV light is frequent in the elderly people. In addition, a low nutritional intake of Vitamin D is present.

In this study, significant difference between male group and female group was seen in 25(OH)D levels. This is in accordance with the study done by Fleet. J.C (2010) which states that postmenopausal women have severe estrogen loss which in turn disrupts the Vitamin D endocrine system. Several groups have suggested that the loss of intestinal Vitamin D responsiveness in absence of estrogen is due to reduction in Vitamin D receptors in the body.

Serum PTH Levels

Table 4 shows the comparison of serum PTH levels of male and female study groups with that of normal serum levels. The PTH level of male group was within normal range, albeit slightly towards higher side. The PTH level of female group too was within normal range, although some individual highest values were above the normal range. When compared between the two groups, the mean serum PTH value of female group was significantly higher than the male study group. Table 4 and Graph 1 show significant negative correlation between serum PTH levels and serum 25(OH)D levels. This is in accordance with the study done by Lee *et al.* (2002).

The possible explanation for increase in serum PTH levels is as follows. A low serum 25(OH)D concentration is the hallmark of Vitamin D deficiency. The low serum 25(OH)D concentration has led to a small decrease of serum 1,25-(OH)₂D and Calcium absorption. The lower serum Calcium concentration has caused an increase of PTH secretion, which is referred to as “secondary hyperparathyroidism.” It implicates that serum PTH is relatively high for normalizing the serum Calcium concentration, although it may still be within normal reference limits (Lips P., 2001).

In this study females had higher serum PTH levels. This is in accordance with Amsterdam Vitamin D study in which an interaction was observed between the serum concentration of sex hormone binding globulin (SHBG) and the relationship between serum PTH and 25(OH)D. Mean serum PTH was high in Vitamin D-deficient elderly with high serum SHBG which is associated with low free estrogen concentration (Ooms, *et al.*, 1995).

Serum Calcium Levels

Table 5 shows comparison of serum Calcium levels of male and female study groups with that of normal serum levels. Both the male and female study groups had values within the normal range. There was no significant difference between the groups either. This was in accordance with the study done by Lee *et al.* (2002), which stated that the studied elderly people had normal serum Calcium levels.

The probable explanation for this is as follows. Bone remodeling can maintain circulating Calcium within physiological ranges, at the expense of a substantial loss of this ion from the skeleton, particularly during senescence. There is progressive decline of efficiency in the intestinal Calcium absorption, starting after the age of 60–65 years. This trend is due to the decreased production of gastric acid, leading to a lower amount of intra-luminal ionized Calcium, the changes of duodenal mucosa, and the impairment in Vitamin D levels (Marcus, *et al.*, 1984). Hypovitaminosis D always causes a reduction of Calcium intestinal absorption that induces a negative Calcium balance. When the serum Ca²⁺ is decreased, more PTH is secreted, which then acts on its cognate G-protein-coupled receptor, the PTH1R, at its target tissues, bone and the renal tubule, and corrects the serum Ca². This induces resorption of Calcium from bone in order to maintain serum Calcium within normal levels (Passeri, *et al.*, 2008).

Serum Phosphate Levels

Table 6 shows comparison of serum Phosphate levels of male and female study groups with that of normal serum levels. Both the male and female study groups had values within the normal serum Phosphate range. A comparison of average serum levels of Phosphate between male and female groups shows no significant difference.

The possible explanation for normal serum Phosphate levels is as follows. Typical diets contain adequate levels of phosphorus, due to its availability in many common food sources (Heaney R.P., 2004, and 2005). Because intestinal Phosphate absorption is highly efficient, urinary excretion is not constant but varies directly with dietary intake. This physiologic renal adaptation to changes in dietary Phosphate availability occurs independently of PTH and 1,25(OH)₂D levels.

A major hormone regulating Pi homeostasis is Fibroblast growth factor 23 (FGF23). It is predominantly secreted by osteocytes and is a major factor in the regulation of Pi homeostasis, which acts on the kidney to cause Pi loss independent of 1,25(OH)₂D and inhibits 1,25(OH)₂Vitamin D secretion. However, FGF23 and PTH also share a direct interaction, in which FGF23 acts on the parathyroid to decrease PTH gene expression and secretion. The trio is maintained in tempo by the action of 1,25(OH)₂Vitamin D, which fine tunes PTH and FGF23 by increasing FGF23 and decreasing PTH. Phosphatein turn regulates parathyroid gland activity and PTH secretion independently of secondary changes in ECF Ca²⁺, 1,25(OH)₂Vitamin D, or FGF23, thus completing a network of endocrinological feedback loops and thus trying to maintain the normal serum Phosphate levels (Silver J. *et al.*, 2009).

A low serum 25(OH)D concentration is the hallmark of Vitamin D deficiency. The low serum 25(OH)D concentration has led to a small decrease of serum 1,25(OH)₂D and Calcium absorption. The lower serum Calcium concentration has caused an increase of PTH secretion. When the serum Ca²⁺ is decreased, more PTH is secreted, which then acts on its cognate G-protein-coupled receptor, the PTH1R, at its target tissues, bone and the renal tubule, and corrects the serum Ca²⁺. PTH also causes phosphaturia and hence decreases serum Phosphate. But serum Phosphate is normalized by endocrinological feedback loops of FGF23, serum PTH and 1,25(OH)₂D in the early stages of senescence.

It is observed in this study that there is prevalence of decreased Vitamin D and in the setting of increased PTH has maintained the Calcium homeostasis of the body by maintaining the normal Calcium and normal Phosphate levels. The differences seen between females and males can be attributed to additional influence of estrogen deficiency.

Since geriatric physiology is a progressive decline, further study needs to be done taking a older age group.

Limitations

Other bone related blood parameters like Bone Mineral density, 1,25(OH)₂D, Calcitonin, Alkaline phosphatase, sex hormone binding globulins could not be measured.

Conclusion

Senescence is accompanied by low Vitamin D, and increase of PTH levels which has maintained normal Calcium levels and normal Phosphate levels in the given population. The significant difference in males and females can be attributed to additional effect of estrogen deficiency to the concert of above mentioned hormones.

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Effects of Prolonged Hospitalization on Chronically ILL Elderly Patients in Federal Medical Centre Yenagoa, Nigeria

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ABSTRACT

Long term hospitalized elderly patients are those elderly whose length of stay had notably exceeded the average length of stay for the diagnosis related group, based on principal admitting diagnosis. The aim of this study was to determine the effect of prolong hospitalization on the chronically ill 50 elderly patients (28 or 56% male and 22 or 44% female) age varying from 65 yrs. and above, of Federal Medical Centre (FMC) Yenagoa, Nigeria. A pilot tested structured interview schedule was administered to collect data. The self-designed questionnaires were given to elderly patients with chronic conditions in all the wards that admit elderly patients in FMC Yenagoa. Data collected from the descriptive study was analysed using percentages and tabular presentations. The study revealed that the effect of long term hospitalization can be severe and has different effects on the elderly. These can be grouped as

physical, social, economic, and psychological. Among the physical effects are tiredness, hospital acquired (nosocomial) infection, unfamiliar surroundings, long stay on bed, Lung infections, urinary tract infections, constipation due to prolonged stay in bed, pressure sores, weak muscles, bones and stiff joints and other complications. The study also revealed social effects such as loss of privacy, home sickness, rejection of medication, reduced satisfaction and interference with way of normal life. The economic effects include increased cost, financial constraint, the cost of hospitalization and truancy at work. While the psychological effects are fear due to unfamiliar surroundings, stress and worries. In addition, prolong hospitalized elderly develop a negative perception about the hospital. and react negatively to prolonged hospitalization because some of them believed hospitals are places for people to avoid because hospital is a gateway of death and den of infection. Intervention that reduces hospital noise have been found to improve sleep and reduce elderly patient stress. Studies have shown that patients who sleep well in the hospital recover quickly. The study further revealed that the negative effects of prolong hospitalization on the chronically ill elderly patient can be evaded through mass education of family and care givers. Therefore, the effects of prolong hospitalization on the chronically ill elderly patients should be given its due attention so as to properly reduce the negative perception about the hospital and boost the health and well-being of the chronically ill elderly patient.

Key words: Chronically ill elderly, Elderly, Elderly patients, Hospitalization, Patient, Prolong hospitalization.

Elderly is a concept that is used to describe the age of 60 years and above, this arbitrary age is used not because of an actual change that takes place in the individual, but because it has become the usual age of retirement in our society. In 2010, an estimated 524 million people were elderly. By 2050, this number is expected to nearly triple to about 1.5 billion. Older people and the most rapidly aging populations are in less developed countries. Between 2010 and 2050, the number of older people in less developed countries is projected to increase more than 250 per cent, compared with a 71 per cent increase in developed countries. (national institute on ageing, 2007). chronic health conditions are often associated with decreased affective well-being (Mehnert, Krauss, Nadler, and Boyd, 2009). Given that incidence rates for

chronic health conditions increase with age (Wolff, Starfeld, and Anderson, 2002), physical health declines with age, and both incidence and prevalence rates of multiple chronic health conditions increase (Wolff *et al.*, 2002). A greater number of conditions, particularly those incurring chronic impairment, are related to lower levels of well-being (Zeiss, Lewinsohn, Rohde, and Seeley, 2006), increased depressive symptoms (Schnittker, 2005), and lower levels of life satisfaction (Jelicic and Kempen, 2009).

Chation (2014) defined long term hospitalization as 30 days stay in the hospital, also long term hospitalized patient are those whose length of stay had notably exceeded the average length of stay for the diagnosis related group, based on principal admitting diagnosis. This is a period when the patient begins to get tired and no longer feels comfortable with the Hospital environment (Chation, 2014; Herve, David and Todd, 2015). Hospitalization is the most restrictive form of treatment for an individual disorder whether it is voluntary or involuntary, the patient relinquished the freedom to move about and once admitted becomes the subject to the rules and schedules of the treatment environment. Normal pattern of behaviour generally change with illness, with hospitalization the changes can be even greater. Hospitalization usually disrupts a person's privacy, autonomy, lifestyle, rules, and finances (Basavanthappa, 2012). The rate of hospital admissions increases steeply with age in all adult age groups with the older persons having the highest rate of admission in the hospital. A study showed that half of adults who occupy hospital beds are from 55 years and above, and this population is expected to increase as the population ages (Australian institute of Health, 2016).

Chronic diseases/illnesses are those which are insidious at onset, progressive, usually long term and from which there is never complete restoration to normal (Walsh and Crumby, 2014). It is a debilitating condition that interferes with an individual's way of living a normal life. Most chronic diseases/illnesses do not resolve spontaneously and are generally not cured completely. Analysis of the 2004–2005 National health Survey showed that over 7million elderly people have at least one chronic condition, and the proportion having this condition increases with age globally. Long hospitalisation not only increases cost, it is also associated with other complications, it is even

worse with elderly patient who have chronic illness as they have to face the challenges that the illness poses in their life, as well as the implication of staying long in the hospital.

Statement of the Problem

Staying in the hospital for a long period of time can be considered very tiring and stressful. Some aged patients perceive it as a challenge while others perceive it as not necessary. In the period of this long hospital stay, elderly patients face different challenges and difficulties which include; acquisition of nosocomial infection, depression, development of pressure sores, payment of huge hospital bills, problem of adaptation to a new environment and role function. In response to this, elderly patients react in different ways depending on the effect of such challenge on the patient. Despite the challenges faced by these elderly patients during a long hospital stay, there are still many cases of prolonged hospitalization in Federal Medical Center (FMC). The problem of this study therefore, is to investigate the effect of prolonged hospitalization on chronically ill elderly patients in Federal Medical Centre (FMC) Yenagoa Bayelsa State

The Purpose of the Study

The aim of this study was to determine the effect of prolonged hospitalization on the chronically ill elderly patient in FMC Yenagoa.

Objectives of the Study

The specific objectives of this study were: to

1. To examine the effect of long term hospitalization on the chronically ill elderly patient.
2. To examine the reactions of chronically ill elderly patient on prolonged hospitalization

Significance of the Study

The knowledge obtained would be useful in the formulation of recommendation to reduce the effect that long term hospitalization has on chronically ill elderly patients. The knowledge obtained would also be useful in the formulation of recommendation to reduce the negative reactions of chronically ill elderly patients on prolonged

hospitalization. It will also be a material for other researcher who may want to make further study on this topic or related topics.

Researcher Questions

1. What are the effects of prolonged hospitalization on chronically ill elderly patients?
2. What are the reactions of chronically ill elderly patients on prolonged hospitalization?

Theoretical Framework

The theory used in this study is Katherine Kolcaba (1994) Comfort theory. Kolcaba described comfort as existing in three (3) forms: relief; ease; and transcendence. Also, Kolcaba described 4 contexts in which patient comfort can occur: Physical, psycho-spiritual, environmental and sociocultural.

If specific comfort needs of a patient are met, for example, the relief of post-operative pain by administering prescribed analgesic, the individual experiences comfort in the relief sense.

If the patient is in a comfortable state of contentment, the person experiences comfort in ease sense. for example, how one might feel after having issues that are causing anxiety addressed.

Lastly, transcendence is described as the state of comfort in which patients are able to rise above their challenges.

Kolcaba (1996) said health care needs are those identified by the patient in a particular practice. Also intervening variables are those factors that are not likely to change and over which providers have little control (such as prognosis, financial situation, extent of social support. etc.)

Kolcaba (2006) described nursing as the process of assessing the patient's comfort needs. developing and implementing appropriate nursing interventions, and evaluating patient comfort following nursing interventions.

According to the theory, comfort is an immediate desirable outcome of nursing care.

Application to the Study

In hospitalization, a patient's comfort is impaired mostly. Kolcaba believed that nursing care is aimed at improving patient's comfort. According to Kolcaba's theory, the patient's comfort is met when the 3 phases are achieved (that is, relief, ease, and transcendence) (Kolcaba, 1994). An Elderly patient who is hospitalized for a long period of time may lose comfort. He may not be able to achieve any of the three forms of comfort Kolcaba described. Also prolonged hospitalization affects Elderly patients physically, Psychologically, and spiritually which is part of the context comfort can occur (Kolcaba, 1994).

Methodology

Research Design

The research design for this study was descriptive research design.

Research Setting

This study was conducted among chronically ill elderly patients in Federal Medical Centre (FMC) Yenagoa in Bayelsa State, Nigeria. The Federal Medical Centre (FMC) was established on the 19th of September 1999, which was upgraded from an existing General Hospital until 1999 when it was eventually converted to Federal Medical Centre. It is accessible through a road named after it (hospital road), off MbiamaYenagoa Road. It is bounded on the west by a river, in the East, by a popular motel (creek motel), in the North Ministry of Education and in the South Ministry of Works. The hospital is surrounded by a 1.9km perimeter fence. It is a 150 bed hospital, consisting of 30 units with about three hundred and ten (310) nurses and other medical personnel as staff working there (Administrative Record).

Target Population

The target population for this study was all elderly patients who have been hospitalized for up to four weeks or more in the various wards at the Federal Medical Centre Yenagoa.

Sampling Size

A sample size of 50 patients were used cutting across the existing wards that admit elderly in Federal Medical Center (FMC)

Sample Technique

A convenient, non-probability sampling technique was used as Elderly patients with chronic illness that requires long stay up to the defined period (4 weeks) were limited. Therefore, all patients meeting this criterion were used.

Instrument for Data Collection

A self-structured questionnaire that focused on the effect of prolonged hospitalization on chronically ill elderly patients in Federal Medical Centre Yenagoa. The questionnaire comprises of three (3) sections “A”, “B” and “C”. Sections. A comprised of 10 items that focused on the socio-demographic conditions of the elderly while section B consisted of 14 items that examined the effect of long term hospitalization on the chronically ill elderly patients. While section C consisted of 13 items that examined the reactions of chronically ill elderly patients on prolonged hospitalization.

Validity and Reliability of the Instrument

A pilot tested structured interviewer-administered questionnaire was used to collect data. The research instrument used was a self-designed questionnaire to explore the effect of prolonged hospitalization on chronically ill elderly patients and the reactions of chronically ill elderly patients on prolonged hospitalization. The instrument was validated and the reliability was established using the test retested method and a retest coefficient of 0.84 was arrived at. Pilot study was conducted in Ikare-Akoko, Ondo State outside the research setting to assess whether the questions are clear and well understood by the participants as well as answering the issues raised in the research questions and research objectives.

Procedure for Data Collection and analyses

A pilot tested structured interviewer-administered questionnaire was used to collect data on the effect of prolonged hospitalization on

chronically ill elderly patients and the reactions of chronically ill elderly patients on prolonged hospitalization. The instrument was made without the respondents' names in order to ensure anonymity and confidentiality. Respondents' consent was obtained after explanations about the nature and purpose of the study. Respondents were allowed to go through and be clear in areas which might tend to pose ambiguity after which attended instrument were retrieved.

Descriptive statistics in the form of frequency, percentages, bar and chart was used to analyse data on the effect of prolonged hospitalization on chronically ill elderly patients. The data was inputted into SPSS (Version 22).

Ethical Consideration

A letter of introduction and permit to carry out research was duly presented before the ethical committee of the Federal Medical Centre (FMC) Yenagoa. The research was allowed to commence after clearance from the ethical committee. Participation by respondents was made voluntary and all sensitive data/information concerning the respondents were made confidential and their anonymity was also ensured.

Results

Table 1

Socio-Demographic Data of Respondents (n = 50)

<i>S/N</i>	<i>Variable</i>	<i>Frequency (%)</i>
1.	Sex	
	Male	28(56)
	Female	22(44)
	Total	50(100)
2.	Age (Years)	
	65-65	14(28)
	66-70	8(16)
	71-75	17(34)
	76 and above	11(22)
	Total	50(100)

Cont'd...

Cont'd...

3. Marital Status	
Single	1 (2)
Married	31(62)
Divorced/Separated	7 (14)
Widow/Widower	11(22)
Total	50(100)
4. Educational Qualification	
Primary	24(28)
Secondary	19(38)
Polytechnic	3(6)
University	4(8)
Total	50(100)
5. Religion Affiliation	
Christianity	40(80)
Islam	6(12)
Traditional	4 (8)
Total	50(100)
6. Occupation	
Farming	25(50)
Retired	11(22)
Civil servant	5(10)
Trading	7 (4)
Unemployed	2 (4)
Total	50(100)
7. Monthly Income	
< #10,000	14(28)
#10,000 – #20,000	23(46)
> #20,000	13(26)
Total	50(100)
8. Ethnic background	
Ijaw	25(50)
Epie	17(34)
Igbo	3(6)
Yoruba	2(4)

Cont'd...

Cont'd...

	Hausa	1(2)
	Others	2(4)
	Total	50(100)
9.	Financial dependence	
	Yes	38(76)
	No	12(24)
	Total	50(100)
10.	Livingwith	
	Spouse	19(38)
	Children and spouse	17(34)
	Children only	5(10)
	Relatives	4(8)
	Alone	5(10)
	Total	50(100)

The socio-demographic data of respondents is detailed in table 1. Findings show the response of the elderly on different socio-demographic aspects of the aging in the study locale. About 28 (56%) of the respondents are male, while 22 (44%) are female. The study reported that 40 (80%) of the respondents are Christian, while 6(12%) of the respondents are Muslim. The above table further showed that 25 (50%) of the respondents are farmers, 11(22%) of the respondents are retirees while 5 (10%) are business men and women. About 31(62%) are married while 11(22%) are widowed. About half 25(50%) of the respondents are Ijaw. About 19(38%) lived with their spouse, while 38 (76%) of them are financially dependent.

Table 2
Reason for Respondents Hospitalization

<i>Reason</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Pulmonary tuberculosis	5	10%
Fracture	8	16
HIV/AIDS	7	14%
Cancer	3	6%
Stroke	7	14%
Hypertension	9	18%

Cont'd...

Cont'd...

Diabetes	6	12%
Peptic ulcer disease	1	2%
Heart failure	2	4%
Renal failure	2	4%
Total	50	100%

Findings from table 2 above showed that 5 (10%) of the respondents have pulmonary tuberculosis, 8 (16%) of the respondents have fracture, 7 (14%) of the respondents have HIV/AIDS, 7 (14%) have stroke, 9 (18%) have hypertension, 6 (12%) have diabetes, 1(2%) have peptic ulcer disease, while 2 (4%) of the respondents have heart failure, and another 2 (4%) of the respondents have renal failure.

Table 3*Number of Times a Respondent has been Hospitalized within a Year*

<i>Number of Times</i>	<i>Frequency</i>	<i>Percentage</i>
1	30	60%
2	16	32%
3	2	4%
4	1	2%
5	1	2%
Total	50	100%

From table 3 above, it shows that 30 (60%) of the respondents have been hospitalised once this year, 16 (32%) have been hospitalised twice, 2 (4%) have been hospitalised three (3) times, while 1 (2%) have been hospitalised four (4) times and another 1 (2%) of the respondents have been hospitalised five (5) times this year.

Table 4*Length of Hospitalisation of Respondents*

<i>Length of Hospitalisation</i>	<i>Frequency</i>	<i>Percentage</i>
20-30 days	25	50%
31-40 days	11	22%
41-50	6	12%
51 days and above	8	16%
Total	50	100%

From table 4, the above, findings showed that 25 (50%) of the respondents have been hospitalised between 20-30 days, 11(22%) of the respondents have been hospitalised for 31-40 days, while 6 (12) of the respondents have been hospitalised for about 41–50 days, and 8 (16%) of the respondents have stayed for 51 days and above.

Table 5
Respondent's Experience Since Hospitalization

<i>Experience</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Depression	11	22%
Lack of sleep	17	34%
Aggression	4	8%
Sadness	18	36%
Total	50	100%

From table 5 above, it shows that 11 (22%) of the respondents have experienced depression since hospitalization, 17 (34%) have experienced difficulty in sleeping, while 4 (8%) have been aggressive, and 18 (36%) of the respondents have experienced sadness since hospitalization.

Table 6
Reasons for Respondents Long Stay in the Hospital

<i>Reason</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Financial problem	30	60%
Type of illness	13	26%
Emotional stress	7	14%
Total	50	100%

Table 6 above, revealed that 30 (60%) of the respondents believe that the type of illness is responsible for their long stay in the hospital, 13 (26%) believe it is as a result of financial problems, while 7 (14%) of the respondents believe it is as a result of emotional stress.

Table 7
Respondents' Views on Prolong Hospitalisation

<i>Items</i>	<i>Response</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Respondents' view on the question, is bed sore due to prolonged hospitalization	Yes	37	74%
	No	7	14%
	Undecided	6	12%
	Total	50	100%
Patients having bedsore since hospitalisation	Yes	18	36%
	No	32	64%
	Total	50	100%
Respondents' view on nosocomial infection is due to prolonged hospitalisation	Yes	36	72%
	No	8	16%
	Undecided	6	12%
	Total	50	100%
Respondents having nosocomial infection	Yes	17	34%
	No	33	66%
	Total	50	100%
Respondents' view on whether hospital weak bones is as a result of prolonged infection	Yes	16	32%
	No	24	48%
	Undecided	10	20%
	Total	50	100
Respondents having weak bones since hospitalisation	Yes	7	14%
	No	37	74%
	Undecided	6	12%
	Total	50	100%
Respondents' view on, are the hospital staff friendly	Yes	41	82%
	No	6	12%
	Undecided	3	6%
	Total	50	100%
Respondents' view on is the hospital environment conducive	Yes	15	30%
	No	32	64%
	Undecided	3	6%
	Total	50	100%

Cont'd...

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Respondents' view on hospital environment contributing to prolonged hospitalization	Yes	19	38%
	No	30	60%
	Undecided	1	2%
	Total	50	100%
Respondents' view on can prolonged hospitalization be reduced	Yes	47	94%
	No	2	4%
	Undecided	1	2%
Respondents' view on what can reduce prolonged hospitalization	Positive attitude to treatment	9	18%
	Prompt medical and nursing intervention	23	46%
	Reducing stress	4	18%
	Good and adequate nutrition	7	18%
	Conducive and clean environment	7	14%
	Total	50	100%

Table 7 above revealed that 37 (74%) of the respondents believe that bed sore is due to prolonged hospitalization, while 7 (14%) of the respondents believe that bedsore is not due to prolonged hospitalization, and 6 (13%) of the respondents were not sure. It was further revealed that 18 (36%) of the respondents have had pressure sore, while 32 (64%) of the respondents have not had pressure sore.

In addition, table 7 showed that 36 (72%) of the respondents believe that nosocomial infection is due to prolonged hospitalization while 8 (16%) believe it is not as result of prolonged hospitalization. It was also showed that 17 (34%) of the respondents have had a nosocomial infection. The table further showed that 16 (32%) of the respondents believe that prolonged hospitalisation causes weak bones while 24 (43%) of the respondents believe that prolonged hospitalisation does not cause weak bones Furthermore, 7 (14%) of the respondents have had weak bones since hospitalization. About 41 (82%) of the respondents said the hospital staff are friendly, while 6 (12%) of the respondents said the hospital staff are not friendly. It also shows that 15 (30%) of the respondents said the hospital environment

is conducive for them, while 32 (64%) of the respondents said the hospital environment is not conducive for them.

The study also revealed that 19 (38%) of the respondents believe that the hospital environment contributed to their long stay in the hospital, while 30 (60%) of the respondents believe that the hospital environment has nothing to do with their long stay in the hospital.

From the table above, it shows that 47 (94%) of the respondents believe prolonged hospitalization can be reduced, 2 (4%) believe it cannot be reduced, while 1 (2%) of the respondents were not sure. The table further reveals that 9 (18%) of the respondents think positive attitude to treatment will reduce prolonged hospitalization, 23 (46%) of the respondents said prompt medical and nursing intervention, 4 (8%) of the respondents said stress reduction, while 7 (14%) of the respondents believe good and adequate nutrition can reduce prolonged hospitalization, and another 7 (14%) of the respondents believe good and adequate nutrition can reduce prolonged hospitalization, and another 7 (14%) of the respondents think conducive and clean environment will reduce prolonged hospitalization.

Discussion of Findings

The study revealed that more than half of the respondents believe that their type of illness is responsible for their long stay in the hospital because some of the respondents have pulmonary tuberculosis, nosocomial infection, as well as fracture, these are ailments that they believed would take longer time to heal, hence prolong hospitalization and that might be the reason for the continuous hospitalization.

The study revealed that some respondents have experienced depression since hospitalization, about one third have experienced difficulty in sleeping, as well as sadness since hospitalization. These might be as a result of strange environment, prolonged hospitalization as well as reaction to the effect of prolonged hospitalization.

Financial problems due to their dependence such as inability to settle bills to go home as well as lack of fund to purchase drugs, test and treatment can also prolong hospitalization.

The study revealed that about one fifth of the respondents think positive attitude to treatment will reduce prolonged hospitalization, prompt medical and nursing intervention, stress reduction, as well as good and adequate nutrition can reduce prolonged hospitalization, that the hospital environment has much to do with their long stay in the hospital because a conducive and clean environment will reduce nosocomial infection and reduced prolonged hospitalization, hence reduction in secondary complications.

Research Question 1

What are the effects of long term hospitalization on the chronically ill elderly patients?

The study revealed that about one third of Elderly patients hospitalised with chronic conditions have had bed sore. It was also revealed that about one third of patients with chronic condition have had a nosocomial infection and one tenth of patients hospitalised with chronic conditions have had weak bones. This explains that pressure sore, nosocomial infections and weak bones are among the problems that are caused by prolonged hospitalization.

This is in line with the study carried out by Shanmugam (2015) that 5 to 10 per cent of patient who are hospitalised get a nosocomial infection. Froehlich (2016) said that hospital infections add up to the already existing problem facing the patient, thereby worsening patient's condition. Also Afolabi (2012) points out that pressure sore occurs more frequently especially in Nigerian hospitals which is also in line with the study carried out in Federal Medical Center (FMC) Yenagoa. This is also related to the study carried out by Timothy (2014) that sickness often causes change in behaviour which is quite irrational.

Research Question 2

What are the reactions of chronically ill elderly patient on prolonged hospitalization?

About two thirds of the respondents believe the hospital environment is not conducive and only one third stated otherwise. This shows that the respondents reacted negatively to prolonged hospitalization. This is in line with the work carried out by Caterina,

(2006) which explained that some patients believed hospitals are places for people to avoid. Patients believed that hospitals are gateways of death and dens of infection.

The study revealed that prolonged hospitalisation can be reduced, as majority of the respondents agreed to the fact that prolonged hospitalisation can be reduced, while only few said otherwise. This is in line with the study carried out by Timothy (2004) that physician and nurses can affect length of stay from admission to discharge from hospital.

Implication to Nursing

The discussion of results showed that pressure sores, nosocomial infection, weak bones, financial and psychological stress are some of the major problems that Elderly patient who have stayed long in the hospital face. Many of them react to this challenge by refusing medication, and non-corporation with health care providers. Based on these, it calls for a huge responsibility on the part of nurses to ensure that prolonged hospitalisation of Elderly patient is reduced. Nurses should as much as possible reduce patients' stress by improving sleep, reducing noise and providing positive distraction. Also patient's satisfaction should be one important hospital priority in reducing hospitalisation, as patient should receive prompt and timely care, should be educated about their medical options, and should feel they have been treated with courtesy and respect.

H1 Summary

This study attempts to find out the effects of long term hospitalization on the chronically ill elderly patient in Federal Medical Center (FMC) Yenagoa. Structured questionnaires of fifty (50) copies were given to patient with chronic conditions in all the wards in FMC Yenagoa. In the course of the study, various reviewed literatures were also used, which all reported to be in line with this study carried out. Data collected from the descriptive study was analysed using percentages and tabular presentations. The following were therefore identified as the effects of long term hospitalization on the chronically ill elderly patient in Federal Medical Center (FMC) Yenagoa. Bed

sores, nosocomial infections, weak bones, psychological problems, and financial constraints.

Conclusion

The study revealed that prolonged hospitalisation has a negative effect on the chronically ill elderly patient in Federal Medical Center (FMC) Yenagoa.

Hospitalization is needed in some cases for treatment to be more effective, but when patient satisfaction in the care is ignored, patients tend to stay longer in the hospital. Therefore, it is important for nurses to reduce stress, health educate the patient, prevent complication and improve patients' comfort so as to reduce length of stay of patient in the hospital.

Recommendation

Based on the findings, the researcher recommended that

- Nurses should ensure that the nursing process is properly used in the care of the patient and it should be individualised so as to improve outcome.
- Nurses should ensure that patients are educated about the condition and treatment regimen along with their family members.
- Nurses can help client adapt to life in the hospital by providing explanation about hospital routine as well as making arrangements wherever necessary to accommodate client's lifestyle.
- Nurses should provide physical comfort with clean and conducive environment in order to reduce secondary complications.
- Prompt medical and nursing intervention is necessary in the treatment of the patient so as to reduce length of stay.

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Assessing Home Safety in Homebound Older Adults belonging to Upper and Middle Socio-economic Status

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ABSTRACT

The purpose of this study was to perform home safety assessment among home dwelling 100 older individuals of both genders (50 males and 50 females), age varying from 60 yrs to 80 yrs, belonging to upper and middle classes of socio-economic status. Their socio-economic status was determined by using Kuppaswamy's Socio-economic status Scale. These participants were administered BI (The Barthel Index) and Home safety tool individually. The findings of the current study revealed that the home-dwelling elderly participants of this study were moderately dependent on their caregivers in performing activities of daily living, required supervised assistance and increased effort while performing normal activities in and around the house with minimal difficulty. Majority of the respondents of this study did not use/require any assistive devices while performing ADL and were unaware about the solutions that can help improve their safety and reduce the difficulty faced by them.

Key words: Geriatric Population, Homebound, Socio-economic status, , Home safety

In homebound older adults, their major priority is living independently. They reside in houses either with their spouses, family or alone. Independent living is often associated with mental and physical impairments. Risk for falls and unintentional injury is often associated with various symptoms such as chronic illnesses, decreased mobility, weakened vision, balance and strength affection, and increased risk factors within the home setting such as environmental (including internal and external) risk factors (Tanner, E.K., 2003).

Subsequent falls of about 45 per cent are very common in those who have had previous falls and one-third of total elderly population fall at least once each year (Rubenstein, L.Z., 1995). Mortality, diminished functional ability or permanent loss of independent living are common results of unintentional injury resulted because of falls.

Assessment of homes and surroundings is important to assess risk factors leading to falls in older adults and also for prevention of falls to promote independent living for as long as possible (Tanner, E.K., 2003).

Previous studies had various limitations as most of the studies had small sample size, high dropout rates or unclearly defined checklists. Many studies have been conducted in different parts of the world but not many studies are found to be conducted on Indian Geriatric Population. Therefore, this study focuses on performing home assessments. It presents the purposes of home assessments, including internal and external environmental safety assessment, history of falls, use of personal precautionary techniques, risk and preparation for fire and disasters, and risk of crime. The classification of components of home safety assessment is based on findings of Elizabeth Tanner (2003).

All community based studies focus on socioeconomic stratification as this is the key to understanding of affordability of health services, amenities and the ability to purchase things. When it is taken as a summation of education, occupation and income, it reflects the value system expected for that level of education and occupation. Income is parallel to standard of living. Socio Economic Status (SES) is an established determinant of health. Kuppuswamy's socioeconomic status scale is an important tool in hospital and community based

research in India which was originally proposed in 1976 (Kuppuswamy, B., 1981 and Kumar, B.R., *et al.*, 2013).

Objectives of the Study

This study was conducted to assess the extent of assistance required, difficulty in doing ADL activities, in and around the house, the equipment used/required for maintaining safety and reducing the risk of falls and physical safety which would enable home dwelling elderly persons to further reduce the risk of falls.

Method

Sample

The present cross sectional study was conducted with the aim to find out home safety assessments amongst home dwelling older individuals to prevent or reduce the risk of falls. For this purpose 100 home dwelling older individuals (50 male and 50 female) age varying from 60 to 80yrs. These elderly persons were residing in homes either alone or with family members. Institutionalized elderly and elderly belonging to lower Socio-economic status were excluded from this study.

Tools Used

- (a) Kuppuswamy's Socio-economic status Scale was used to determine the socio-economic status of the participants
- (b) The Barthel Index (BI) was used to measure independence in the *activities of daily living* (ADLs) It measures the patient's daily functioning, specifically the activities of daily living (ADL) and mobility (Mahoney, F.I., 1965). Barthel index score was examined for each participant to assess his activities of daily living.
- (c) Home Safety Assessment Tool (Tanner, E.K., 2013). The components of the Home Safety Assessment Tool are categorized into the following subscales: (1) Risk for Falls: External Factors (19 questions), (2) Risk for Falls: Internal Factors (2 questions), (3) History of Falls (2 questions), (4) Risk for Injury: Use of Personal Precautions (12 questions), (5) Risk and Preparation for Fire and Disasters (10 questions), (6) Risk for Crime (5 questions). Each

question is responded either as No or yes or N/A. The sub scale-Risk for Falls: External Factors is important to assess areas of risk

Methodology

Each participant was informed about the purpose of the study and was asked to give a written consent prior to participation in the study. Consenting participants were then enrolled in the study. Thereafter an appointment was fixed for the investigators' visit to collect the data. The principal investigator visited homes in which dwell older adults. The researchers interviewed and assessed home safety of participants by using a home safety tool. The demographic details were collected from the participants and safety assessment was done by the therapist herself. Assistance was taken from the family members. In case of older individuals residing alone, assistance for filling the tool was obtained from the subjects themselves.

By using Kuppuswamy's Socio-Economic Status Scale the socio-economic status was determined and they were classified as belonging to Upper and Middle Classes (upper middle and lower middle).

The functional independence of each individual was examined by using Barthel index. BI has 10 areas of activity viz., feeding, bathing, grooming, dressing, bowel, bladder, toilet use, transfers (from bed to chair and back), mobility (on level surfaces), and stairs. Total score may be from 0 to 100 in this scale. The scores ranging from 0-20 indicates "total" dependency, 21-60 indicate "severe" dependency, 61-90 indicate "moderate" dependency, and 91-99 indicates "slight" dependency (Shah S, *et al.*,1989). Low scores on individual items highlight areas of need.

All data collection described herein was approved by the institutional Ethics committee of School of Physiotherapy, D.Y. Patil Deemed to be University, Nerul, Navi Mumbai.

Result

Table 1 describes the demographic details of the study.

Table 2 presents the BI scores of the subjects

As shown in Table 2, dependency of geriatric individuals was found out by using The Barthel ADL Index which suggests that maximum number of geriatrics were moderately dependent on their care givers.

Table 1
Demographic Details of Participants

<i>Age Group</i>	<i>No. of Subjects</i>
60–65	21
65–70	22
70–75	19
75–80	13
80–85	15
85–90	10
Total	100
Gender	
Male	50
Female	50
Total	100
Socio-economic status	
Class I	24
Class II	46
Class III	30
Total	100

Table 2
Barthel Index Scores of the Elderly of this Study

<i>Barthel Score</i>	<i>Number of People</i>
0–20	0
21–60	9
61–90	55
91–99	8
100	28
Total	100

The Home Safety Assessment questionnaire comprised 4 Domains. Every domain had 6 sections. Every section in-turn had a number of questions which the subjects answered individually. The total score of each section in Assistance Domain of the questionnaire was 7; likewise, Difficulty domain was 4, Equipment and Safety domains were 2 each. At completion of the questionnaire, all the scores in each section were averaged. The final score of each Domain was then calculated as an average of each section scores. 100 geriatric subjects presented with varied scores in all the sections. Therefore, the total score of the 4 domain were classified in frequency intervals as shown in Table 3.

Average scores of each section of each domain of the questionnaire were taken. It was observed that in the Assistance domain maximum assistance was required in the section 5 which included questions of Risk and Preparation for Fire and Disasters and least being required in sections 2 (Risk for Falls: Internal Factors) and 3 (History of falls) equally which suggests that minimal assistance (up to 25%) is required in section 5(Risk and Preparation for Fire and Disasters) of the Assistance domain. It was observed that in the second domain, i.e., Difficulty, maximum difficulty was faced by the individual in section 5 (Risk and Preparation for Fire and Disasters) of the domain which suggests that minimal to moderate difficulty was faced by the subjects in this section. Equipment score in each domain is equal which suggests that people using equipment required equipment in all sections and those who didn't require equipment didn't use equipment in any section. It was observed that in the Safety domain, maximum factors that were observed to be unsafe belonged to sections 3(History of Falls), 5 (Risk and Preparation for Fire and Disasters) and 6(Risk for Crime) equally which suggests that maximum modifications are required in these sections.

Average scores of each domain of the questionnaire were calculated, as shown in Table 3 and Graph 1. It was observed that average score for assistance was 6.01 out of 7 which suggests that supervised assistance is required by most of the elderly people. The average score for difficulty was 3.34 out of 4 which suggests that there is increased effort required to perform normal activities in and around the house with minimal difficulty. Average score for equipment is 1.7 out of 2

which suggests that majority of people do not use any equipment in and around the house even though they have difficulty and using of the equipment may reduce the difficulty. The average score for safety is 1.66 out of 2 which suggests that most of the factors are ideal and safe to prevent or reduce falls.

Graph 1

Average scores of the various domains of the questionnaire assessing the home safety amongst elderly population

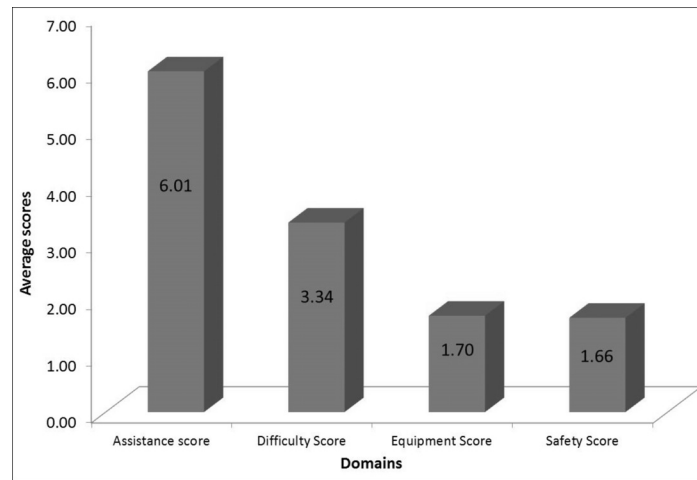


Table 3

Average of Domain of the Questionnaire

Domains	Total Average Scores of Each Section						Average Domain Score
	1	2	3	4	5	6	
Assistance score	6.3	6.5	6.5	6.3	4.7	5.8	6.01
Difficulty Score	3.4	3.5	3.5	3.6	2.6	3.5	3.34
Equipment Score	1.7	1.7	1.7	1.7	1.7	1.7	1.70
Safety Score	1.7	1.7	1.6	1.8	1.6	1.6	1.66

Further, each section and domain scores were classified according to frequency intervals so as to find the number of subjects presenting with similar scores. Table 4 shows the number of subjects in each section of the domain and their score intervals.

Table 4
Number of Subjects and their Score Intervals in Each Section and Domain of the Questionnaire

Domains	Score Interval	Sections					
		1	2	3	4	5	6
Assistance	1-2	1	0	0	0	1	0
	2-3	1	0	2	1	1	1
	3-4	1	2	2	2	4	3
	4-5	5	1	1	4	43	8
	5-6	17	6	6	15	45	27
	6-7	72	45	24	47	4	50
	7-8	3	46	65	31	2	11
Total (n)		100	100	100	100	100	100
Difficulty	1-2	1	1	0	2	2	1
	2-3	11	3	5	4	73	9
	3-4	87	87	63	86	25	88
	4-5	1	9	32	8	0	2
Total (n)		100	100	100	100	100	100
Equipment	1-2	30	30	30	30	30	30
	2-3	70	70	70	70	70	70
Total (n)		100	100	100	100	100	100
Safety	1-2	98	87	71	72	100	93
	2-3	2	13	29	28	0	7
Total (n)		100	100	100	100	100	100

In the current study for the Assistance domain, Section 1 dealing with architectural details outside and inside the house, it was observed that 72 people had an assistance score ranging in class interval 6-7, 17 people had scores ranging in class interval 5-6, 5 in class interval 4-5, followed by people in class 7-8 and 1 in class intervals 3-4 and 1-2 each. Section 2 of Assistance Domain dealing with internal risk factors for falls, depicted that 46 people had their assistance score ranging in class interval 7-8, 45 people in class interval 6-7, 6 people having their scores in interval 5-6, 2 in class 3-4 and 1 in class interval 4-5. In Section 3 of Assistance Domain dealing with history of falls, it was

observed that 65 people had their assistance score ranging in class interval 7-8, 24 people in class interval 6-7, 6 in class interval 1-2, 2 in class intervals 2-3 and 3-4 each and 1 in class interval 4-5. In section 4 of Assistance Score, dealing with use of personal precautions which causes risk of injury, it was observed that 47 people had their assistance score ranging in class interval 6-7, 31 had their scores ranging in class interval 7-8, 15 in class interval 5-6, 4 in class interval 4-5, 2 in class interval 3-4 and 1 in class 2-3. In Section 5 of the Assistance Domain dealing with Risk and preparation for fire and disaster, it was observed that 45 people had their assistance score ranging in class interval 5-6, 43 had their scores in class interval 4-5, 4 in class intervals 6-7 and 3-4 each, 2 in class interval 7-8 and 1 in class interval 1-2. In Section 6 of the Assistance Domain dealing with Risk of Crime, it was observed that 50 people had their assistance score ranging in class interval 6-7, followed by 27 people had their scores in class interval 5-6, 11 having their scores in class interval 7-8, 8 in class interval 4-5, 3 in class interval 3-4 and 1 in class interval 2-3.

For the Difficulty Domain, Section 1 dealing with architectural details outside and inside the house, it was observed that 87 people had difficulty score ranging in class 3-4 followed by 11 people had scores ranging from 2-3 and 1 person each had scores in class intervals 1-2 and 4-5 each. Section 2 of Difficulty Domain dealing with internal risk factors for falls, depicted that 87 people had scores in class interval 3-4, 9 people's score ranges in class interval 4-5, followed by 3 in class interval 2-3 and 1 in class interval 1-2. Section 3 of Difficulty Domain dealing with history of falls, it was observed that of 63 people had score ranging in class interval 3-4, 32 people in class interval 4-5, followed by 5 in class interval 2-3. In section 4 of Difficulty Score, dealing with use of personal precautions which causes risk of injury, it was observed that 86 people had scores ranging in class interval 3-4, followed by 8 people's score ranging in class interval 4-5, 4 in class interval 2-3 and 2 in class interval 1-2. In Section 5 of the Difficulty Domain dealing with Risk and preparation for fire and disaster, it was observed that 73 people had scores ranging in class interval 2-3, 25 in class interval 3-4, followed by 2 in class interval 1-2. In Section 6 of the Difficulty Domain dealing with Risk of Crime, it was observed that

that 88 people had their difficulty score ranging in class interval 3-4, 9 in class interval 2-3, 2 in class interval 4-5 and 1 in class interval 1-2.

For the Equipment Domain, Section 1 dealing with architectural details outside and inside the house, it was observed that 70 people had their equipment score ranging in class interval 2-3 followed by 30 people's score ranging in class interval 1-2. Section 2 of Equipment Domain dealing with internal risk factors for falls, depicted that 70 people had their equipment score ranging in class interval 2-3 followed by 30 people's score ranging in class interval 1-2. Section 3 of Equipment Domain dealing with history of falls, depicted that 70 people had their equipment score ranging in class interval 2-3 followed by 30 people's score ranging in class interval 1-2. In section 4 of Equipment Score, dealing with use of personal precautions which causes risk of injury, depicted that 70 people had their equipment score ranging in class interval 2-3 followed by 30 people's score ranging in class interval 1-2. In Section 5 of the Equipment Domain dealing with Risk and preparation for fire and disaster depicted that 70 people had their equipment score ranging in class interval 2-3 followed by 30 people's score ranging in class interval 1-2. In Section 6 of the Equipment Domain dealing with Risk of Crime, depicted that 70 people had their equipment score ranging in class interval 2-3 followed by 30 people's score ranging in class interval 1-2.

For the Safety Domain, Section 1 dealing with architectural details outside and inside the house, it was observed that of 98 people had their scores ranging in class interval 1-2, followed by 2 people's score ranging in class interval 2-3. Section 2 of Safety Domain, dealing with internal risk factors for falls, depicted that 87 people had their scores ranging in class interval 1-2, followed by 13 in class interval 2-3. Section 3 of Safety Domain dealing with history of falls, it was observed that 71 people had scores ranging in class interval 1-2, followed by 29 people in class interval 2-3. In section 4 of Safety Score, dealing with use of personal precautions which causes risk of injury, it was observed that 72 people had scores ranging in class interval 1-2, followed by 28 people in class interval 2-3. In Section 5 of the Safety Domain dealing with Risk and preparation for fire and disaster, it was observed that all 100 of people had their score ranging in class interval

1–2. In Section 6 of the Safety Domain dealing with Risk of Crime, it was observed that 93 people had score ranging in class interval 1–2, followed by 7 people in class interval 2-3.

Discussion

Home safety assessment for prevention of risks of fall was conducted in the present research study amongst 100 home dwelling older individuals between the age group 60 to 90 years of age. Most home care providers agreed that any reduction in falls is worth the amount of time required to perform a home assessment and make recommendations for home modifications. [Anemaet WK, *et al.*, 1999] The home dwelling older adults in this study belonged to Upper and Middle Socio-economic class who needed some assistance and had difficulty in at least some of the ADL activities such as bathing, working in kitchen, housekeeping, etc. According to the Barthel's Index, maximum individuals required moderate dependency on their care givers.

The average score of Assistance Domain suggests that most of the people needed supervised assistance. Majority of geriatrics had moderate dependency on their caregivers in performing activities of daily living and required supervised assistance. Mainly they required Assistance or were unable to perform activities in Section 5 (Risk and Preparation for Fire and Disaster). A study carried out by Elizabeth K. Tanner suggests that SSC 5 indicated that most participants were at low or no risk for fire, yet 28.4 per cent were poorly prepared to respond to fire or disaster. [Tanner EK, 2013] Whereas in India most of them didn't have any access to Fire extinguisher and most of the buildings or apartments didn't have smoke detectors present. Many of them didn't have any emergency exit plans to escape fire from their house or their buildings. It was observed that in newer constructed buildings, the availability of fire extinguishers and emergency exit plan was more visible.

The average score of Difficulty Domain suggests that there was increased effort required performing normal activities in and around the house with minimal difficulty. Maximum difficulty was faced in Section 5 (Risk and Preparation for Fire and Disaster) because the dwellers were unable to do it as they had no smoke detectors, fire

extinguisher or emergency exit plan. Other major difficulty faced by most of the geriatrics was observed while getting in and out of the toilets and bed. All of them had western sitting toilet and thus didn't have any major difficulty using it but had difficulty while getting up and sitting because of unavailability or unawareness about use of grab bars which would reduce the difficulty. Majority had history of falls in bathroom area because of slippery flooring and unavailability of grab bars.

It was also observed that most of the participants didn't use/require any Assistive devices while performing ADL activities. Majority of them had difficulty in Performing ADL which could be reduced if Assistive devices were used. Majority were unaware about the solutions that can help improve their safety and reduce the difficulty faced by them. They could function independently if they made use of Assistive devices and other equipment appropriately. Energy expenditure for day to day activities can be decreased with use of assistive device and adaptive equipments. [Bynum HS, *et al.*, 1987], [Arborelius UP, *et al.*, 1992] Even though it is suggested by their care givers that using of assistive device would reduce the difficulty and improve their functional activities, they do not have acceptance for it but in turn reduce or avoid performing the activities that cause or increase difficulty for, e.g. some choose to avoid going down for walk and would prefer walking in the house because of unavailability of lifts in the building rather than using a cane which decrease the energy expenditure and difficulty levels. Some people couldn't use appropriate assistive device because of the architectural barrier because of narrow doorways or bathroom doors. However, adaptive equipment use may be limited if architectural barrier exists [Anemaet WK, *et al.*, 1999]. Even though the required moderate dependency on their care giver and difficulty faced by them can be drastically reduced if they use appropriate assistive devices, most of the people refuse to accept the use of the devices because of their mentalities.

The average score of Safety Domain suggested that overall Safety score of majority of people is close to Safe and if taken proper care, the risk of falls can be further reduced. The safety score of majority of people was affected in Sections 3(History of Falls), 5(Risk and

Preparation for Fire and Disaster) and Section 6(Risk of Crime). Mainly in section 4 because of unavailability of fire extinguishers, smoke detectors, and emergency exit plan as mentioned above. Other factors affecting safety score are unavailability of step tool, safety doors and unstable chairs and foot mats. Unawareness and unavailability of grab bars in the bathroom was observed to be major cause of falls in the bathroom, if they were available, the falls could have been prevented and the incidence of falls in the bathroom area would reduce drastically. A study done by B.S. Leclerc, *et al.*, suggests that Relationship between home hazards and falling among community-dwelling seniors using home-care services stated that Home environmental hazards were found in 91 per cent of homes, with a mean of 3.3 risks per individual. The bathroom was the most common place for hazards. The presence of hazards was significantly associated with all falls and fall-related medical consultations, and showed relatively constant effects from one fall to another. [Leclerc, *et al.*, 2010].

Conclusion

Assessment of intrinsic and extrinsic Home Safety parameters is essential for home dwelling geriatric population for effective prevention of risk of falls leading to disabilities. The findings of the current study suggests that the home-dwelling Geriatric Population were moderately dependent on their caregivers in performing activities of daily living and required supervised assistance with increased effort required while performing normal activities in and around the house with minimal difficulty. It was evident that majority didn't use/require any assistive devices while performing ADL activities even though majority of study population had difficulty in performing ADL which could be reduced if assistive devices were used. Majority were unaware about the solutions that can help improve their safety and reduce the difficulty faced by them.

Recommendations

Assessment of Home Safety parameters is essential for home dwelling geriatric population for effective prevention of risk of falls. It

also allows geriatric population to perform their activities more efficiently. Thus, the medical personnel and care givers of the home dwelling geriatric individuals should be encouraged to undergo periodic Home Safety Assessment. Home Safety Assessment checklist would enable one to identify the functional levels, comfort and safety of geriatric population in their homes and would help to evaluate the modifications and assistive equipment and devices required to reduce the risk of falls and improve their accessibility in and around their houses, thereby improving their level of dependency on care givers. Home safety assessment would also allow the geriatric population to perform their activities of daily living more efficiently. Therefore, the medical personnel and care givers of the home dwelling geriatric individuals should be encouraged to undergo periodic Home Safety Assessment.

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Factors Influencing Living Alone among Elderly Widows in Rural Puducherry

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ABSTRACT

The paper aims to find out those factors which affect the 'living alone' as against 'co-residing' with others among elderly widows belonging to rural Puducherry. Cross-sectional and primary data was collected by using interview schedule from 130 elderly widows (60 years and above of age) from selected (10 Primary Sampling Units, which are parts of 9 Panchayat communes) rural areas of Puducherry. The results showed that about one-third of the sample elderly widows (33%) are 'living alone' closely followed by living with married son (28.5%) and married daughter (18.5%), whereas the remaining of them are co-residing with others such as unmarried children, siblings/relatives, grand children and widowed daughter. Differentials in living arrangements viz., 'living alone' as against 'co-residing with others' across their selected background characteristics are mostly on the expected lines (based on cross-tabular analysis with Chi-square test of significance). Binary logistic regression analysis results revealed that the tendency to 'live alone' by the sample elderly widows is observed to be pertinently lower among those who belonged to households of fairly higher family monthly income ($p < 0.001$) followed by those who attained widowhood comparatively at higher ages (56+ years; $p < 0.01$) and such likelihood is moderately lower among those who

are said to be economically (partially/fully) dependent ($p < 0.05$) and have three or more number of surviving children ($p < 0.05$) than their counterparts. Literacy status, community background, owning of asset(s) and functional ability (IADL score) have also exhibited net effects on 'living alone' by the elderly widows, but insignificantly.

Key words: Living arrangements, Elderly widows, Rural Puducherry

Living arrangements of the elderly widows play a vital role in determining their health, security and overall well-being during their twilight years. India being traditional and culture-bound society, till recently, family structure (joint family) and son(s) used to take care of the elderly and thereby, co-residence is the most common type of living arrangement seen among the elderly. However, in majority of the more developed countries the practice of living alone by elderly has become more prominent during the last two-three decades, whereas such type of living arrangement has started in less developed countries (wherein the share of elderly population is much higher) very recently. An analysis of data from 61 societies around the World (circa, 2010–11) by Reher and Requena (2018) revealed that the percentages of living alone ranged from as high as 45–50 per cent to as low as 5–10 per cent. Further, it is noted that the highest levels of single living appeared to be concentrated in the richest societies (with the exception of Japan) and the lowest levels are found in many Asian and African countries. Moreover, in most societies, levels of living alone among women are significantly higher than among men (in some cases such patterns are striking) and the percentage differences tend to be highest in the richest societies. On the other hand, in some Caribbean and African societies, living alone is more frequent among men than among women, though the differences tend to be small. These patterns are also found to be, more or less, universal and appear to be relatively stable over time as observed by United Nations (2005) for the data collected in the 1990s. All these sex differentials in living alone are mainly due to the higher prevalence of widowhood among women.

Theoretical Propositions and Earlier Research

Keeping in view of above trends in living arrangements of elderly (living alone) during the past few decades, several studies have attempted to find out the correlates of living arrangements among elderly in different parts of the World, but scanty attempts have been made in India (that too, in the recent past) among the elder persons in general and that of elderly widows in particular. At the outset, in Indian context, studies carried out earlier at different settings have come to the conclusion that elderly women tend to live alone at a higher extent and such pattern is more pertinent among elderly widows (in the range of about 15%–35%). While investigating the major factors that influence living alone by the elderly, higher economic status/access to financial resources have been observed to be playing a vital role in determining elderly persons in general and elderly women/widows in particular to live alone largely. Theoretically, those who are earning higher income or those who belong to households that have higher family income, owning of assets and economically/financially independent are more likely to live alone than their counterparts. On the other hand, those who belong to higher castes (higher in social strata), which usually have higher socio-economic status, are also more likely to live alone than those who belong to lower castes (Scheduled Castes/Tribes). Another major finding noted and theoretically, supported is that elderly women/widows who are educated mostly prefer to live alone. This is mainly due to the fact that such women tend to be economically better off, likely to work and/or earn personal income, besides having ownership of assets. In addition to these, educated elderly have started to think rationally so as not to disturb the younger couples by co-residing with them.

Some of the demographic factors found to be affected/determine the living arrangements of the elderly, especially living alone. Current age is the prime factor in this regard. Generally, young-old (60–70 years) are more likely to live alone than those who are old-old (80+ years). This is mainly because those who are younger in age are able to live alone as they may participate in work and earn personal income, besides they will be healthy to manage themselves. Conversely, when the elderly becoming old, in addition to health deterioration, children

would be married, mostly live in as separate families (especially in the case of those who have daughters) and/or establish families in towns/urban areas or outside state/country if they are working in such places. Additionally, in the case of elderly widows, the ages at which they become widowed play a vital role in deciding their living arrangements. Generally, in Indian context, if the women become widowed at early age, mostly they will try to live independently since by that time they would have one or two children to take care of either by earning some income and/or getting some financial and social support from parents/in-laws. Conversely, those who become widowed relatively at higher ages (say about 60 years and above), by that time they might be co-residing either with son(s) and/or daughter(s) since the responsibility of taking care of the mother (elderly widow) primarily lies with them. Of course, such women have the support of their spouse till they become widow. Having children is another crucial factor that decides the living arrangements of the elderly widows and generally, it is established that having higher number of children lessens the possibility of living alone by the elderly. This is mainly due to the fact that, as stated earlier, in most of the developing countries including India, it is the prime responsibility of the children (especially sons) to look after the elderly persons in general and elderly widows in particular due to the cultural norms followed at community/societal level, in which case co-residence is expected. In fact the society looks down such children who don't take care of their widowed mothers. However, such accountability is less in the case of daughters and again there is cultural support for the same (not obligatory to take care) in which case elderly widows mostly live alone with the support of social pension and/or at times with the support of one or the other son or daughter. But most of the widows who do not have children live alone because very few of them are allowed to stay with their siblings or other close relatives with large difficulties.

In the recent past, factors related to health and illness also appear to be the major determinants of living arrangements. In general, healthy elderly women (either perceived or actual) or the non-appearance of chronic morbidities give them confidence to live alone rather than depending upon their children/others. On the other hand,

if they are suffering from a number of chronic morbidities, the children or close relatives believe that by providing shelter to such women they will be financially drained, besides difficulties in extending physical and emotional care. In view of this, it is presumed that elderly widows who are suffering from number of chronic morbidities are less likely to live alone as compared to those who are not suffering from any chronic morbidity and/or suffering from limited number of morbidities (that need not have a financial burden to the caretakers as well as will not require much of their time and energy). Ability to perform certain day-to-day activities (Instrumental Activities of Daily Living) is another major factor that determines the living arrangements of the elderly. Generally, those who are able to do or perform day-to-day activities without much difficulty have higher tendency to live alone as they need not depend or less depend upon others to perform these activities. With some exceptions, some studies have supported all these prepositions with empirical data across different settings of Indian society (Audinarayana, 2011, 2012, 2017; Audinarayana and Kavitha, 2003; Chaudhuri and Roy, 2009; Panigrahi, 2010; Singh, 2012; Balamurugan, 2013; Jadhav *et al.*, 2013).

Methodology

Keeping the aforesaid earlier research in mind, in this paper, an attempt is made to explore the role of different factors in influencing elderly widows to live alone with empirical data from a micro-level investigation carried out in rural areas of Puducherry.

Cross-sectional and primary data collected from 130 elderly widows (who are in 60+ years of age) from rural areas of Puducherry is analysed in this paper. The selected elderly widows are residing in 13 primary sampling units (PSUs; 10 from each PSU – village or part of village based on systematic random sampling), which are parts of 4 rural Panchayat communes (selected based on simple random sampling from 9 Panchayat communes). Data has been collected through interview schedules with face-to-face interviews from the elderly or at times proxies to elderly during March–April, 2019.

Description of the Variables

Dependent Variable: In the present study, information on different types of living arrangements viz., living alone, with married son and daughter, unmarried children, grandchildren, widowed and divorced daughters and living with siblings, of the elderly widows is collected. Based on this information, all the elderly widows have been grouped into two categories viz., those living alone (assigned a score of '1') and co-residing with (all) others under study (assigned a score of '0'), which is considered here as *dependent variable*. More details related to this are provided in Table 1.

Independent Variables: The independent variables considered for this paper include elderly widows' current age, literacy status, family income, ownership of assets, dependency status, caste, age at widowhood, total number of children living, chronic morbidity status and functional ability (IADL score). The details of these variables are mostly self-explanatory (see Table 3), except in the case of IADL score. With regard to *IADL score*, Lawton and Brody (1969)'s scale is made use of, which is based on eight specified functions viz., the ability to telephone, go to shopping, food preparation, housekeeping, doing laundry, travelling, responsibility for own medication and ability to handle finances. The scoring followed for this scale has a minimum of '0' (who are not able to perform the specified activity) and a maximum of '1' (who are able to perform partially or fully the specified activity). The pooled scores for each of the elderly widows indicate that higher the score higher would be their functional ability to perform the specified activities under study. Based on the pooled score, all elderly widows have been categorized here into two groups, viz., 'Lesser extent' (those who are able to perform 7 or less number of activities) and 'Higher extent' (those who are able to perform all 8 activities under study). Details of all these variables are provided in Table 3.

With regard to the analysis, the patterns of living arrangements of sample elderly widows, besides the reasons for living alone, and their selected background characteristics are computed through the frequency tables. The associations between the selected background characteristics and the prevalence of living alone and/or not (co-residing with any close relatives of the family) are examined with the help of cross-tabular analysis and Chi-square test of significance. At

the next stage, the binary logistic regression analysis is adopted to identify the principal factors that are likely to influence the tendency to live alone among the elderly widows. All these analyses are carried out with IBM SPSS software (Version 20.0).

Results and Discussion

Patterns of Living Arrangements among the Elderly Widows

Among the sample elderly widows (Table 1), on the whole, 33 per cent of them are living alone closely followed by living with married son (28.5%) and married daughter (18.5%). Very few of them stated to be living with unmarried children, siblings/relatives, grandchildren and widowed/divorced daughter (in the range of 3.8%–6.1%). The magnitude of living alone among the sample elderly is mostly on par with the findings noted among widowed women (35%) in rural settings of Tamil Nadu (Audinarayana and Kavitha, 20003) and Puducherry (Balamurugan, 2013) – among elderly women (35%).

Table 1
Living Arrangements of the Elderly Widows in Rural Puducherry

<i>Living Arrangements</i>	<i>Percentage</i>	<i>Frequency</i>
Living Alone	33.1	43
Living with Married Son	28.5	37
Living with Married Daughter	18.5	24
Living with Unmarried Children	6.1	8
Living with Grandchildren	4.6	6
Living with Widowed/Separated Daughter	3.8	5
Living with Siblings/Relatives	5.4	7
Total	100.0	130

When enquired about the reasons for living alone by the elderly widows (Table 2), majority reported as ‘son or daughter does not want to take care of them mainly due to poor economic conditions and/or children (sons) living away’ (39.6%) narrowly followed by ‘nobody to take care – no children and/or other close relatives’ (37.2). Next to these, while some of them mentioned ‘family conflicts (between children and/or among family members’ (14%), some others felt

‘prefer to live independently’ as the reasons for living alone. The analysis of BKPAI data for Tamil Nadu (Audinarayana, 2017) highlighted that ‘children away’ followed by ‘prefer to be independent’ and ‘no children’ as the major reasons for living alone by the elderly (both men and women), besides ‘family conflicts’ and ‘do not want to move from this place (of present residence)’.

Table 2
Reasons for Living Alone by Elderly Widows in Rural Puducherry

<i>Reasons for Living Alone</i>	<i>Percentage</i>	<i>Frequency</i>
Son or daughter does not want to take care	39.6	17
No Body to take care	37.2	16
Family Conflicts	14.0	6
Prefer to be independent	9.2	4
Total	100.0	43

Background Characteristics of the Elderly Persons

Among the sample elderly widows (Col. 2 and 3, Table 3), it can be seen that fairly higher percentages of them are belonged to non-SC/ST communities (72%), economically (partially/fully) dependent (70%) and belonged to households that have relatively higher monthly income (62%). On the other hand, a little over half of them each have three and more number of surviving children (55%), suffering from two or more chronic morbidity conditions (52%) and have ability to perform all eight day-to-day functions under study (52%). Conversely, a bit lesser percentages of them belonged to the age group of 70 years and above (48%), attained widowhood at higher ages (56 years and above; 48%), owning one or more asset(s) (mostly house and very few own land/house plot and jewellery; 41.5%) and literates (35%). By and large, all this information indicates that the sample elderly widows are socio-economically and health conditions-wise positioned at poor to less than average level.

Differentials in the Living Arrangements of the Elderly Widows Across their Selected Background Characteristics

Data presented in Table 3 (Col. 4 and 5), on the whole, suggest that the living arrangements viz., living alone and co-residing with others of the elderly appear to be varying significantly, mostly on the expected line, across their (selected) background characteristics. The details highlight that the percentage of living alone by the elderly widows is significantly lower among those who: belonged to middle-old and above age group (70+ years; 23%), are part of households that have relatively higher monthly income (10%), economically (partially or fully) dependent (20%), happen to be widowed relatively at higher ages (56+ years; 18%), have three or more number of surviving children (24%) and are suffering from two or more number of chronic morbidity conditions (21%) than their respective counterparts. On the other hand, such pattern of living arrangement is conspicuously higher among those elderly widows who: are literates (50%), owning of one or more asset(s) (54%), belonged to non-SC/ST castes (37%) and have the ability to do all eight instrumental activities of daily living (51.5%) than their respective matching parts. Obviously, the percentages of elderly widows who are co-residing with one or the other family members/relatives are found to be opposite to the patterns observed in the earlier lines. Further, it is conspicuous to note that the Chi-square test results in all these regard turned out as highly significant ($p < 0.001$ or $p < 0.01$), except in the case of caste background ($p < 0.10$).

Table 3
Background Characteristics and Differentials in Living Arrangements of Elderly Widows in Rural Puducherry

Background Characteristics of the Elderly Widows	%	N	Living Alone		Co-residence		χ^2 - Value; Sig. Level
			%	Fre.	%	Fre.	
1. Current Age (in Years)							
60-69	52.3	68	42.6	20	57.4	39	5.989;
70 and Above	47.7	62	22.6	14	77.4	48	0.01
2. Literacy Status							
Illiterates	64.6	84	23.8	20	76.2	64	9.310;
Literates	35.4	46	50	23	50	23	0.001

Cont'd...

Cont'd...

3. Family Income (in Rs)							
6,000 or Less	37.7	49	71.4	35	28.6	14	52.254;
6,001 and Above	62.3	81	9.9	8	90.1	73	0.001
4. Ownership of Assets							
Not Owning Any Asset	58.5	76	18.4	14	81.6	62	17.754;
Owning 1 or more Asset(s)	41.5	54	53.7	29	46.3	25	0.001
5. Dependency Status							
Not Dependent	30	39	64.1	25	35.9	14	24.227;
Partially/Fully Dependent	70	91	19.8	18	80.2	73	0.001
6. Caste							
Scheduled Castes/Tribes	27.7	36	22.2	8	77.8	28	2.650;
Non-SC/ST	72.3	94	37.2	35	62.8	59	0.1
7. Age at Widowhood (in Years)							
55 or Less	52.3	68	47.1	32	52.9	36	12.582;
56 and Above	47.7	62	17.7	11	82.3	51	0.001
8. Total No. of Children Living							
2 or Less	45.4	59	44.1	26	55.9	33	5.995;
3 and Above	54.6	71	23.9	17	76.1	54	0.01
9. Chronic Morbidity Status							
Not and Suff. from Any 1 Morb.	47.7	62	46.8	29	53.2	33	10.046;
Suffering from 2+ Morbidities	52.3	68	20.6	14	79.4	54	0.001
10. Functional Ability (IADL)							
Lesser extent (=7 Functions)	47.7	62	12.9	8	87.1	54	21.792;
Higher extent (All 8 Functions)	52.3	68	51.5	35	48.5	33	0.001
Total	100	130	33.1	43	66.9	87	-

Binary Logistic Regression Results on Living Alone among Elderly Widows

In order to know the net effects of the explanatory variables on the living arrangement of living alone (as against co-residence) by the elderly widows, binary logistic regression analysis is carried out. For this purpose, of the ten explanatory variables under study, seven have been taken into consideration. The two variables that are not included in the model are current age and chronic morbidity status, which are having high multi-collinearity with other variables.

Table 4
Logistic Regression Results on Living Alone (vs. Co-residence) by Elderly Widows in Rural Puducherry

<i>Explanatory Variables</i>	β Co-efficient	Odds Ratio	P-level
Age at Widowhood (Ref: ≤ 55 Years)			
56 +	-1.630	0.196	0.01
Literacy Status (Ref: Illiterates)			
Literates	0.67	1.954	NS
Family Income (Ref: = Rs 6000)			
6001 +	-2.727	0.065	0.001
Ownership of Assets (Ref: Not Own Any Asset)			
Own 1 or more Assets	0.121	1.129	NS
Caste (Ref: SC/STs)			
Non-SC/STs	0.461	1.586	NS
Economic Dependency (Ref: Not Dependent)			
Partially/Fully Dependent	-1.447	0.235	0.05
Total Children Living (Ref: = 2 Children)			
3+ Children	-1.184	0.308	0.05
Functional Ability (Ref: Lesser Extent)			
Higher Extent	0.808	2.242	NS
-2 Log Likelihood		82.966	
Chi-square; df; Sig.; N		82.051; 8; 0.001; 130	
Cox and Snell R Square (in %)		46.8	
Nagelkere R Square (in %)		65.1	

Results given in Table 4 reveal that, controlling for all the other explanatory variables, included in the model, the tendency to live alone among the sample elderly widows is observed to be pertinently lower among those who belonged to households of fairly higher family monthly income (OR=0.065; $p < 0.001$) followed by among those who attained widowhood comparatively at higher ages (56+ years; OR=0.196; $p < 0.01$). Likewise, such likelihood is moderately lower (and significant) among those who are said to be economically (partially/fully) dependent (OR=0.243; $p < 0.05$) and have three or more number of surviving children (OR=0.308; $p < 0.05$) than those who are economically independent and have two or less number of surviving children. On the other hand, as expected, though the probability of living alone is found to be higher among

those elderly widows who are literates, owning of one or more asset(s), belonged to non-SC/ST communities and also among those whose functional ability is higher than their counterparts, the t-statistics didn't turn out as significant in all these regards.

Conclusions and Implications

A substantial percentage of the elderly in selected rural areas of Puducherry is living alone, which indicates the despair situation of widows with poor economic and health condition. This has been further supported by the fact that their own son or daughter is not interested to take care of them, besides there is nobody to look after or take care of them at times of emergency. As expected, elderly widows who are part of economically better off households and perceived that they are economically (partially/fully) dependent have showed less inclination to live alone than instead of co-residing with other family members. Such findings are obvious because households that are better off are able to meet the day-to-day needs of the elderly, along with other family members (young children and/or siblings/other relatives) rather than expecting any monetary support from the elderly widows. Of course, another crucial point to be noted here is that almost all the sample elderly are getting social (old age/widowed) pension to the tune of Rs 2,000/to Rs 3,000/-, through which such households and/or elderly are monetarily beneficial to some extent. Another finding to be noted here is that elderly women become widowed relatively at higher age (and obviously who will be older in current age also) have showed lower tendency to live alone than their counterparts. Such pattern is possible because, such women are most likely live in joint/extended families (which are less in number) and sometimes such women may not have savings as most of their (including spouse's) earnings/property would be drained by upbringing the children and/or maintain the family in a decent manner. On the other hand, the caretakers feel that elderly persons are burden to them as majority of such elderly's physical health and functioning ability will be poorer as they get older in age and thereby, feel burden to take care of them. It is also conspicuous to note that having three or more number of surviving children (at the time of

survey) and perceiving financially dependent (partially/fully) by the elderly widows appear to be less likely to live alone. While the role and/or responsibility of children (especially sons) to take care of the elderly widows is the major reason for the former finding, fearing for lack of economic support or insufficient monetary resources in old age lowers their chances of living alone.

Among the other factors, as expected, elderly widows who are literates/educated, owning one or more assets, belonging to forward castes (higher status in social strata) and able to function major day-to-day activities have showed higher propensity to live alone (and the data also supported statistically significant manner in bi-variate analysis, but not in multi-variate analysis). Conversely, elderly widows who fairly older in current age and are suffering from two or more chronic morbidities appear to be less likely to live alone (and also found to be significant in bi-variate analysis). Plausible reasons for such findings and corroborate findings from other studies are discussed at length under the section – theoretical propositions and earlier research.

On policy front, firstly, there is a need to impart knowledge to the present day younger ones about the interpersonal and family relationships as well training to as extending economic and social security to the elderly, which in turn encourage them to look after their elderly parents and/or grandparents. Though it is not recommended the elderly to live alone, given the present day conditions, persons who are in late adult ages and going to become elderly in age soon have to be advised to keep up some property and/or assets and also maintain good health (by not falling prey to chronic morbidities) so as to keep them physically well and have confidence and courage to live alone. As old age pension or widow pension are the major sources of income for the elderly widows, steps may be taken to enhance the amount on a regular basis depending upon the economic situation of the Central and State governments. Such a measure on the one side, provides financial security to those who are living alone and on the other side, it becomes an additional income for the family in which they co-reside and thereby, motivate the caretakers to allow the elderly to live with their family.

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Optimism and Spirituality in Relation to Psychological Well-being among Middle Aged Adults

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ABSTRACT

Ageing successfully and positively requires some preparation at an earlier stage, e.g. recognizing the factors leading to successful ageing. The study examined the relationship of spirituality and optimism on the psychological well-being among middle-aged-adults and investigated the gender differences. The sample comprised of male (N=87) and female (N=90) adults of age range from 40 to 60 years. The Daily Spiritual Experience Scale, Life Orientation Test – Revised and Ryff's Psychological Well-Being Scale were used to assess the spirituality, optimism and psychological well-being of the participants, respectively. The results indicated a positive relationship of spirituality and optimism with psychological well-being of the participants. Significant difference was found between the scores of male and female participants on Psychological well-being. In addition, gender differences were also observed on three dimensions of psychological well-being, namely, positive growth, purpose in life, and autonomy. The age group 40-45 years was significantly higher on psychological well-being than the age group 55-60 years. The 55-60 years age group scored significantly higher on spirituality than the

40-45 years age group. On the dimensions of psychological well-being, 40-45 years age group scored significantly higher than the 55-60 years age group on environmental mastery, positive relations, personal growth and purpose in life. Regression analysis revealed optimism to be the best predictor of psychological well-being followed by spirituality.

Key words: Middle-Adults, Optimism, Psychological well-being, Spirituality.

Scholars have long recognized the concerns of old age and this area of research has grown exponentially. The psychological well-being of elderly has become an important issue for healthcare providers and various psychological interventions, modules and policies are being planned to enhance their well-being. But if we take a step back and look at the age group just before them, i.e. the middle-adults, we will realize that they are the most worked up section of the society and will eventually be the future elderly generation. Hence, it is imperative to understand that making this age group psychologically fit can lead to their better mental health and well-being when they reach their old age. Middle adulthood, also sometimes called 'the sandwich generation', a term used to describe people who are squeezed between the simultaneous demands of caring for their aging parents and supporting their dependent children (Russell and Glenna, 1988). This age group bears the heaviest responsibilities and can often break under the pressure, making them vulnerable to various psychological problems that could be hampering their quality of life. Like it is said 'precaution is better than cure', preparing adults to age successfully and gracefully at an earlier stage will be more beneficial for both, the elderly and the healthcare providers. For this reason, the present study aims at investigating the role of spirituality and optimism in the psychological well-being of middle-adults in an attempt to contribute to this research area.

Spirituality has been a significant aspect of the lives of people in a country with 33 million gods and goddesses and at least 9 recognized religions. In a country like this where religion and spirituality are inseparable part of the lives of individual, it is bound to affect the way they live and behave. Spirituality is believed to make a person stronger and in times of adversity people take shelter in God or any other

higher power for guidance and peace. In short, spirituality affects the well-being of the people. A large amount of research has indicated that the strength of spiritual belief has a strong positive effect on people's psychological well-being (Pargament and Mahoney, 2009).

Hill *et al.* (2000) viewed spirituality as an important and stimulating aspect of life which helps individuals recognize their inner peace, harmony, hopefulness and compassion for others. Spirituality helps them achieve a sense of purpose and meaning in life through these experiences.

George *et al.* (2000) suggested that people who are spiritual have an understanding of their role in the universe, they realize the purpose of their life and attain some coherence and meaning that helps them develop the strength to endure suffering.

In this sense, spirituality can be understood as a connection with God or any other transcendental power that helps an individual become more aware of the true meaning of life and helps them achieve deep inner peace and harmony. Spirituality helps individual understand themselves better and appreciate life; they feel more positivity in life. It is a force that helps them achieve satisfaction in life and makes them compassionate towards others. Ellison and Fan's (2008) study also showed adults with high spiritual experiences like finding strength in spirituality or experiencing a connection beyond life were found to experience greater happiness, self-esteem and optimism when other variables like gender, age, marital status, education, income and religious attendance and prayer were regulated. Another interesting study by Wink and Dillon (2003) focused on the relation among religiousness, spirituality and psychosocial functioning in late adulthood. Findings suggested a positive relationship between spirituality and well-being.

Optimism, in general means to think positive and to expect good in life. It reflects an individual's ability to see the silver lining in dark times and to hold on to the thought of getting through the problems by believing in one's potential to overcome it. Carver, Scheier and Segerstrom (2010) referred to optimism as a variable that reflects the extent to which people hold generalized favorable expectancies for their future. In a study by Synder and Lopez (2002), it was found that optimism plays a major role in adapting to stressful life situations.

While facing a challenge optimists show higher resilience even if the progress is slow and difficult. Optimism has been believed to be a protective factor for the well-being and physical and psychological health of a person (Scheier and Carver, 1985).

The above review reveals that both spirituality and optimism play an important role in the psychological well-being of an individual. Psychological well-being has been explained by Waterman (1993) in terms of the eudaimonic concept of well-being which explains that people largely live in accordance with their daimon, or true self. He advocated that people encounter eudaimonia when their life activities are largely in congruence with the deeply held values and are completely and fully engaged.

Psychological well-being can be viewed as a protective shield against many physical and mental health problems. A study by Boehm, Peterson, Kivimaki and Kubzansky (2011) supports this statement. They examined the association between psychological well-being and cardiovascular health among middle aged men and women and found that positive psychological well-being was associated with reduced risk of CHD and the association was strong for both the genders. In another interesting study, Boehm and Kubzansky (2012) investigated the association between positive psychological well-being (PPWB) and cardiovascular disease (CVD). The findings suggested that positive psychological well-being protected against CVD. Optimism was found to be associated strongly with a reduced risk of CVD. It was also found that positive psychological well-being had a positive association with restorative health behaviors and biological functions, whereas it was negatively associated with deteriorative health behaviors and biological functions. In addition, cardiovascular health was found to be more reliably associated with optimism and hedonic well-being than with eudaimonic well-being.

Ryff (1989) largely contributed to the study of psychological well-being by formulating a multi-dimensional model that classified six psychological dimensions that challenged thriving. Each of these dimensions presents a different challenge for the individual that they have to face and overcome in order to function positively (Ryff, 1989; Ryff and Keyes, 1995). The following are the dimensions of

psychological well-being: self-acceptance – people hold a positive view of themselves by acknowledging and accepting the multiple parts of oneself and feeling positive about the past even while being aware of their limitations, positive relations with others – people strive to build warm, satisfying relations with others, they try to be empathetic, affectionate and concerned for others, environmental mastery – people attempt to manipulate and shape the environment effectively by using resources to meet their personal needs and desires, autonomy – people desire to be independent and determine their own life by resisting social pressure and seeking a sense of self-determination and personal authority, purpose in life – people put in efforts to seek meaning and a sense of direction in life, personal growth – people strive for personal improvement and trying to make the most of one's talents and capabilities.

In essence, psychological well-being can be referred to a happy mental state that makes people think positively about themselves and others around them, to believe that they are capable of living a healthy life and move towards growth.

The above research and theoretical concepts taken together reflect the need to explore the variables that contribute to the well-being of middle-adults in an attempt to prepare them for old age. This study is unique in the sense, it aims to enhance the well-being of elderly population but has targeted the generation before that in an endeavour to cause a ripple effect, where the middle-adults reach their old age prepared having a positive psychological well-being and henceforth a positive physical and mental health. The study also aims to explore the effect of gender and age on these variable as previous literature shows mixed results in this context.

Objectives

1. To assess the gender difference in spirituality, optimism and psychological well-being among middle-adults.
2. To assess the group difference in spirituality, optimism and psychological well-being among middle-adults from 40-45 and 55-60 years age group.
3. To investigate the relationship between spirituality, optimism and psychological well-being among middle-adults.

Hypotheses

1. There will be significant gender differences in spirituality, optimism and psychological well-being among middle-adults.
2. There will be significant group differences in spirituality, optimism and psychological well-being among adults from 40-45 and 55-60 years age group.
3. There will be positive relationship between spirituality, optimism and psychological well-being among middle-adults.

Methodology

Sample

The study was conducted with middle-aged adults from New Delhi. The data was collected from 177 participants (male = 87) and female = 90) with age range of 40-60 years. They were assured about the confidentiality of their responses. The sample included permanent residents of Delhi who were proficient in English. A correlation design was used to assess the relationship of spirituality and optimism with psychological well-being, t-test was used to assess the gender and group differences and regression analysis was used to assess the best predictor of psychological well-being. Purposive sampling was used for the purpose of data collection.

Tools of the Study

Demographic Profile

The demographic profile was used to record the age, gender and educational qualification of the participants.

Optimism Scale

Optimism was measured with the Life Orientation test- Revised (LOT-R) scale devised by Scheier, Carver, and Bridges (1994). This scale consists of 10-item measure of optimism versus pessimism. Of the 10 items, 3 items measure optimism (items 1,4 and 10), 3 measure pessimism (items 3,7 and 9) and 4 items serve as fillers (items 2,5,6 and 8), whose scores are not calculated. Respondents rate each item on a 4-point scale: 0 = strongly disagree, 1 = disagree, 2 = neutral, 3 =

agree, and 4 = strongly agree. The Cronbachalpha varies from 0.70 to 0.80.

Spirituality Scale

Spirituality was measured with the Daily Spiritual Experience Scale (DSES), Underwood, L.G. and Teresi, J. (2002). It is a 16-item self-report measure of spiritual experience that aims to measure ordinary or daily spiritual experiences and how they are an everyday part of the individual's life. The first 15 items of the questionnaire are measured on a 6-point Likert-scale: 1 = many times a day, 2 = everyday, 3 = most days, 4 = some days, 5 = once in a while, 6 = never or almost never. Item 16 is measured on a 4-point scale: 1 = not close at all, 2 = somewhat close, 3 = very close and 4 = as close as possible. The lower the score on this scale, the higher the spirituality of the individual. The Cronbach's alpha ranged from .94 and .95.

Psychological Well-being Scale

Ryff's psychological well-being scale (1989) was used, it consists of 42-items that aim to measure 6 dimensions of well-being namely, autonomy, environmental mastery, personal growth, positive relations, purpose in life and self-acceptance. It is a 6-point scale ranging from 1 = strongly disagree to 6 = strongly agree. The Cronbach's alpha ranged from .71 to .88.

Statistical Analysis

Descriptive statistics, correlational and regression analysis was used to analyse the data.

Results

Table 1 below indicates the means, standard deviations and *p*-values of the participants on psychological well-being, optimism and spirituality. Psychological well-being was found to be moderate in both males and females. Psychological well-being was significantly higher in male participants ($M = 169.597$, $SD = 22.031$) than the female participants ($M = 161.7667$, $SD = 23.400$) at 0.05 level of significance. Optimism was also moderate in middle adults with non-significant gender difference but still males ($M = 13.59$, $SD = 2.52$) slightly higher on optimism than females ($M = 13.55$, $SD = 2.62$). Level of Spirituality

was again found to be moderate with non-significant gender difference. The males ($M = 43.30$, $SD = 16.63$) were found to be experiencing more spirituality than females ($M = 45.13$, $SD = 16.05$).

Table 1
Mean, SD and P-values of the Sample on Different Variables Gender Wise

	<i>Males (N=87)</i>		<i>Females (N=90)</i>		<i>P-value</i>
	<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>	
Psychological well-being	169.597	22.031	161.7667	23.400	.023*
Optimism	13.597	2.526	13.555	2.625	.914
Spirituality	43.304	16.632	45.133	16.052	.589

* $p < 0.05$ level.

** $p < 0.01$ level.

Table 2 below indicates the means, standard deviations and p -values of the participants on the six dimensions of psychological well-being namely, autonomy, environmental mastery, personal growth, positive relations and purpose in life. Autonomy, Personal Growth and Purpose of life were found to be significantly higher in males ($M = 27.505$, $SD = 5.298$; $M = 28.643$, $SD = 5.229$ and $M = 28.114$, $SD = 4.782$ resp.) than female participants ($M = 26.088$, $SD = 4.169$; $M = 26.644$, $SD = 5.545$ and $M = 26.511$, $SD = 5.206$ resp.) at 0.05 level of significance.

Table 2
Mean, SD and P-values of the Sample on Different Dimensions of Psychological well-being Gender Wise

	<i>Males (N=87)</i>		<i>Females (N=90)</i>		<i>P-value</i>
	<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>	
Autonomy	27.505	5.293	26.088	4.169	.050*
Environmental mastery	27.344	4.008	26.411	3.792	.113
Personal growth	28.643	5.229	26.644	5.545	.015*
Positive relations	29.3103	5.731	28.566	5.920	.397
Purpose of life	28.114	4.782	26.511	5.206	.034*
Self-acceptance	28.678	5.749	27.544	6.058	.204

* $p < 0.05$ level.

** $p < 0.01$ level.

Table 3 below indicates the means, standard deviations and *p*-values of the participants on psychological well-being, optimism and spirituality among the 40-45 years old participants and 55-60 years old participants. Psychological well being was significantly higher in 40-45years participants (M=175.652 SD= 23.836) than the 55-60 years participants (M=157.431, SD=16.399) at 0.01 level of significance. Optimism was not significantly different in any age group with 40-45 years age group (M= 14.260, SD= 3.193) being slightly high on optimism than 55-60 years (M= 13.477, SD= 1.994). Level of Spirituality was found to be significantly higher among the 55-60 years participants (M= 51.090, SD= 17.599) than 40-45 years (M= 39.695, SD= 12.639).

Table 3
Mean, SD and P-values of the Sample on Different Variables Age Wise

	40-45 Years (N=23)		55-60 Years (N=40)		P-value
	Mean	S.D.	Mean	S.D.	
Psychological well-being	175.652	23.763	157.400	15.974	.001**
Optimism	14.478	3.409	13.500	2.063	.160
Spirituality	38.956	13.226	50.900	17.696	.007**

**p* < 0.05 level.

***p* < 0.01 level.

Table 4 below indicates the means, standard deviations and *p*-values of the participants on the six dimensions of psychological well-being namely, autonomy, environmental mastery, personal growth, positive relations and purpose in life. Environmental mastery, Personal Growth, Positive relations and Purpose of life were found to be significantly higher in the younger age group (M=28.347, SD=4.107; M=29.565, SD=5.590; M=32.478, SD=5.007; M=30.391, SD=4.896resp.) than the older age group participants (M=26.325, SD=4.319; M=25.725, SD=3.862; M=27.650, SD=5.294 and M=24.725, SD=3.616resp.) with environmental mastery at .05 level of significance and positive growth, personal relations and purpose in life being significant at 0.01 level of significance.

Table 4
Mean, SD and P-values of the Sample on Different Dimensions of Psychological Well-being Age Wise

	40-45 years (N=23)		55-60 years (N=40)		p-value
	Mean	S.D.	Mean	S.D.	
Autonomy	26.173	5.702	26.175	4.319	.999
Environmental mastery	28.347	4.107	26.325	3.049	.030*
Personal growth	29.565	5.590	25.725	3.862	.002**
Positive relations	32.478	5.007	27.650	5.294	.001**
Purpose of life	30.391	4.896	24.725	3.616	.000**
Self-acceptance	28.695	6.123	26.800	3.596	.126

*p < 0.05 level.

**p < 0.01 level.

Table 5 below indicates the correlation of psychological well-being with spirituality and optimism. Psychological well-being was found to have a positive correlation with Optimism ($r = .377^{**}$) and statistically negative correlation but is interpreted as a positive correlation with spirituality ($r = -.303^{**}$) (lower scores on spirituality scale indicates higher spirituality).

Table 5
Correlations

	Optimism	Spirituality
Psychological well-being	.377**	-.303**

*p < 0.05 level.

**p < 0.01 level.

Table 6 below indicates the stepwise regression analysis of criterion variable (psychological well-being) with predictor variables (optimism and spirituality). Both Optimism and Spirituality were found to statistically predict Psychological Well-Being. Optimism was found to be the best predictor for Psychological Well-Being followed by Spirituality.

Table 6
Stepwise Regression

<i>Predictor Variable</i>	<i>R</i>	<i>R²</i>	<i>R² Change</i>	<i>β-value</i>
Optimism	.377	.142	.142	.314
Spirituality	.455	.207	.065	-.234

Criterion Variable: Psychological Well-Being

Discussion

The aim of the present study was to assess spirituality, optimism and psychological well-being among middle-adults. The results reveal that although both the groups experience moderate level of spirituality, optimism and psychological well being yet males experience higher spirituality, optimism and psychological well being. The study also explored the role of gender in spirituality, optimism, psychological well-being and also on various dimensions of psychological well-being namely, autonomy, environmental mastery, personal growth, positive relations, purpose in life and self-acceptance. Daily Spiritual Experience Scale (DSES), Life Orientation Test – Revised and Psychological Well-Being scales were used to assess the relationship between spirituality, optimism and psychological well-being.

Significant gender difference was found in psychological well-being with males having better well-being than females. In addition to this, t-test was also used to analyse the various dimensions of psychological well-being. Significant gender differences were found on autonomy, personal growth and purpose in life dimensions of psychological well-being and insignificant gender differences were found on environmental mastery, positive relations and self-acceptance dimensions of psychological well-being. Males were found to have better psychological well-being than females. This could be because males get better life opportunities and have more options than females, they have more freedom to express themselves and take their own life decisions whereas, females have to act according to the gender stereotypes that do not allow them to express their true selves and live to their full potential. These gender differences reflect a longstanding social inequality faced by women in a society predominantly ruled by men. The results are in accordance with prior study

done by Roothman *et al.* (2003) who also found similar gender differences in psychological well-being. Insignificant gender difference was found in spirituality with females being numerically high in spirituality than males. In a country like India, people are spiritual as well as religious and they feel a deep connection with God. This feeling of a cosmic power/god looking after one and guiding them through their lives is experienced by a lot of people irrespective of their gender. Study by Simpson, D. B. *et al.* (2008) also found similar results in accordance to our study that there were non-significant difference between the religious participation and spirituality of men and women. This study supports our results and indicates that spirituality as a variable is independent of the effects of gender. Insignificant gender differences were found in optimism with females and males which means that the way people think about their life outcomes has nothing to do with their being male or female. A study by Patton. *et al.* (2004) supports the results as they also found no significant differences between males and females on optimism.

The first hypothesis of the study was that there will be significant gender differences in spirituality, optimism, and psychological well-being of middle-adults. The results revealed that psychological well-being has significant gender difference whereas, no such gender differences were observed on spirituality and optimism.

Significant group difference was found between the two groups on psychological well-being. The 40-45 year age group scored significantly higher on the psychological well-being dimension than the 55-60 years age group. In addition to this, on the six dimensions of psychological well-being, the 40-45 years age group was found to be significantly higher on environmental mastery at 0.05 level of significance and also on positive relations, personal growth and purpose in life at 0.01 level of significance. These results indicate the decline in the well-being of adults as they age with lowered social interactions, retirement, loss of important job roles and other physical health issues rising. Significant group difference was found in spirituality with the 55-60 years age group scoring significantly higher than the 55-60 years age group. The decrease in roles and responsibilities with age leads to more time at hand and developing an outlook of spirituality helps them gain peace of mind and contentment, also mentioned by Erikson

in his integrity v/s despair stage of psychosocial development (Schultz and Schultz, 1987). Spirituality hence can be a means of achieving integrity in life and avoiding despair. Insignificant group difference was found on optimism.

The correlation between psychological well-being and optimism came out to be a significantly positive ($r = .377^{**}$). This moderate correlation indicates that as the level of optimism increases psychological well-being also increases and vice versa. Optimism is an individual's ability to think and expect that positive things are more likely to happen to them as compared to negative outcomes. Thinking positively about life and its outcomes leads to a happy state of mind and hence positive well-being. The result is in accordance with the study conducted by Landa, Martos and Zafra (2010) who also found a positive relationship between optimism and psychological well-being dimensions.

The correlation between psychological well-being and spirituality came out to be statistically negative but is interpreted as positive because lower scores on spirituality scale indicated higher spirituality ($r = -.303^{**}$). This means that as spirituality increases psychological well-being of the person also increases and vice versa. It is seen that spirituality is a connection with a higher power that makes one feel at peace and helps them recognize their true selves that is beyond the materialistic things of this world, so when an individual realizes their truest selves they achieve a sense harmony and satisfaction with life which strongly contributes to the positive psychological well-being of the person. Study conducted by Wink and Dillon (2002) found similar results that spirituality and well-being were positively related.

Thus, the third hypothesis of the study that there will be a positive relationship between spirituality, optimism, and psychological well-being of middle – adults has been fully accepted.

It is evident from the regression analysis that out of the two predictors, optimism emerged as the best predictor for understanding psychological well-being. Observation of R square change and beta values suggest that optimism is the best predictor followed by spirituality. R square change value suggests that optimism explains 14.2 per cent variance in psychological well-being. However, the positive beta weight suggests that optimism is positively correlated with

psychological well-being, which means that as optimism will increase, greater will be the psychological well-being. Further, this beta value also suggests that with one standard unit increase in optimism, the psychological well-being increases by .314 standard unit. This result suggests that optimism is an important contributor of psychological well-being of people. Hence, by promoting positive thinking and helping people think more optimistically about their life situation we can help enhance their psychological well-being.

R square change value of spirituality is .065 which suggests that it explains 6.5 per cent variance in psychological well-being. However, the negative beta weights suggests that this variable is negatively correlated (-.234) with psychological well-being, which indicates that as the score on spirituality scale increases (which means lower spirituality), the psychological well-being decreases. Further, this beta value also suggests that with one standard unit increase in spirituality (i.e. low score on the spirituality scale), the psychological well-being increases by .234 standard unit. Spirituality has also been observed to contribute to the psychological well-being of individuals. The strong belief in a higher power and the faith in it makes it easier for people to accept difficult life situations and gives them the strength to deal with them.

The overall contribution of optimism and spirituality, taken together is 20.7 per cent, which leaves about 80 per cent of variance unexplained. This implies that there are many more variables that need to be studied in order to increase our understanding of psychological well-being.

Conclusion

Overall, the results support the previous research done on these variables separately. Significant effect of gender was found on psychological well-being among middle-adults and a positive correlation of spirituality and optimism with psychological well-being was observed. Also significant group difference was found on psychological well-being and spirituality for both the age groups. Furthermore, analysis also revealed that optimism was the best predictor of psychological well-being followed by spirituality. The middle adults experience moderate level of psychological well being, spirituality and optimism. Interventions and awareness need to be imparted in order

to suggest strategies for enhanced psychological well being by adopting an optimistic approach towards life and adopting spirituality in order to remain engaged and connected to the social world. The results have given a better understanding of the existing state of psychological well-being of middle-adults and indicate need of planning strategies for improvement which in turn will affect their well-being at old age.

Limitations

The total sample size of the study is small and therefore it limits the generalizability of the findings. Hindi adapted scales could have been used. Also, the sample was from a vast age range among middle-adults. The life circumstances and the perspective towards life changes significantly when a person is 40-45 years old and when he is 46-60 years old. Finally, variables other than optimism and spirituality like social support, quality of life, life satisfaction or happiness could also have been studied.

Implications

Findings of the study indicate that spirituality and optimism are positively correlated with psychological well-being. The results also indicate that the psychological well-being of the 55-60 years age group is lower when compared with the 40-45 years age group. So these findings can help health professionals develop activities and interventions which can help improve psychological well-being of people by inculcating spiritual inclination and reinforcing a positive thought pattern in them. The intervention planned at this stage will make it easier for middle-aged adults to age positively and thereby making their old age more positive and healthy.

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What Elders Lost: Review of Factors Affecting Elderly Quality of Life

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ABSTRACT

This paper is based on a descriptive research design by secondary data method to describe the factors affecting the elderly quality of life. This review presents challenges faced by ageing elderly and gives a timely warning of the enormous health system challenges alarming in India's near future, at a time when Indian social care and health system are unprepared to handle the existing burden of elderly care of the Indian population. The future burden of elderly care emphasize on the prevention of high risk factors for chronic diseases and mental health disabilities which has great impact on quality of life of elderly and there is urgent need for strong call for action on addressing socio-cultural norms, health service planning and funding, workforce training and preparation for the Indian Ageing society. The challenges for the health and social care services are huge, with substantial financial and workforce planning predicaments.

Key words: Quality of life, Ageing, Social Support, NCDs, mental health, Health Care Services.

Ageing is the progression of change in the biological, psychological and social formation of an individual. Aging occurs among other large social trends that have an impact on the lives of the elderly.

Globally, population Aging is considered as a holistic concept with a broad range of issues and acknowledged as an important trend in which “we are in the center of a population aging revolution” and this uprising of Aging is seen the world over, but high in the developing countries like India and China affecting sustainable development. The elderly population is expected to increase its share to more than 10 per cent by the year 2021 (Central Statistics Office, 2011). India is expected to become an Aging society by 2024; the focus would be on its preparedness towards meeting the Aging crisis from the present unstructured system (Lee *et al.*, 2011).

In India, as per Census 2011, 8.6 per cent (103 million) of the population out of 1210 million total populations is above the age of 60 and 11 million of the population is over 80 years of age. It is forecasted that by the year 2026, the elderly would increase to 173.2 million and by 2050 the elderly population is expected to be around 300 million and below 60 years of age population would increase by 20 per cent, that above 60 years population would increase by 300 per cent and that above 80 years of population increase by 500 per cent. This demographic transition has intense social, economic and political implications for India. This is the extent of the challenge the Indian society and health care systems may face as “today’s youth are tomorrow’s elderly” and protecting the rights of elderly and ensuring their well-being will be the primary focus.

Aging Elderly Population Burden on Health Systems

Population Aging has intense social, economic and political implications for India. The growing number of older persons put a strain on health care and social care systems due to their ailment and diseases which needs to be addressed by medical services, i.e. hospitals, doctors, nurses are required and also need other facilities and resources. Very old people, due to their reduced mobility and debilitating disabilities, need support from other people to do things for them and to share their concerns and emotional support. Old age is also associated with a higher risk of exposure to various stressors such as the onset of chronic conditions, loss of functions, loss of sources of income, role losses, and loss of spouse and confidants (Nemeroff *et al.*, 2010). Study on the appraisal of unmet needs of the elderly in India

highlights that most of the elderly (46%) were unaware of the availability of any geriatric health care services near their residence and 96 per cent had never used any geriatric welfare service (Goel *et al.*, 1999). National Sample Survey (2004) predicts that the proportion of elderly who cannot move and are confined to their bed or home ranges from 77 per 1,000 in urban areas to 84 per 1,000 in rural areas.

Changing Family Structure and Elderly

The conventional Indian society with an age-old joint family system has been instrumental in the protection of the social and economic security of the elderly people. The traditional socio-cultural norms and values of Indian society stressed on showing respect and providing care for the elderly. But, with the rising prevalence of nuclear family set-ups in recent years, the elderly have been exposed to emotional, physical and financial insecurity and with fewer children in the family, the care of older persons in the families gets increasingly difficult and is facing social isolation. There is increase in prevalence of neglect and abuse of elderly, violation of their rights, financial insecurity, engagement of elderly in informal sector and most importantly physical, social, economic and emotional vulnerability of elderly leads them to isolation, disability, psychological distress, less satisfaction in life which may lead to mental health issues in elderly.

Elderly may face a decline in available sources of social support as a result of changes in the structure of the family, decline in fertility rates and family sizes, as fewer adult children are available to take care and support elderly (Chang, 1992). As a result of broad social changes such as migration, modernization, urbanization, the younger population has later age of marriage, higher divorce rates; preferences for one or two children, higher education, and participation of women in employment, generation gaps and intergenerational challenges have a great influence on functions of the family. Victor (2005) showed that high negative effect on family ties and relationships among family members are seen universally due to social and family changes.

High out-migration of the working-age population, contributes to the process of rapid demographic Aging. According to the United Nations (UN), worldwide the „old-age support ratio was 9 in 2009, this is projected to fall to 4 persons of working age per a person aged 65

or over in 2050. In India, Old-age support ratio in 2012 was 10.8 and decline in the old-age support ratio 2012–50 was 4.8. More than 73 million persons, i.e. 71 per cent of the elderly population reside in rural areas while 31 million or 29 per cent of the elderly population is in urban areas.

Lack of Social Support among Elderly

Cobb (1976) defined social support as ‘the individual belief that one is cared for and loved, esteemed and valued, and belongs to a network of communication and mutual obligations’. Social support is an important issue for the elderly and research on social support has continued to be a dominant force in gerontological literature. It determines the subjective well-being in old age (Rathore, 2009).

Social support is an essential requirement for elderly as old age is associated with an increased risk of exposure to various stressors such as onset of chronic conditions, loss of function, loss of sources of income, role losses, and loss of spouse and confidants (Nemeroff *et al.*, 2010). The elderly may also suffer from ill effects of stress (Oxman *et al.*, 1992; McLeod and Kessler, 1990). Social support acts as a buffer to these stresses and also extends practical help in facing challenges of Aging (Johnson, 1998; Langford *et al.*, 1997). Lack of social support may have negative effects on the mental health of elderly, as social support is believed to play a key role in moderating the effects of stress (Lakey and Cronin, 2008; Cooper *et al.*, 1999; Cohen *et al.*, 1997).

Antonucci and Akiyama (1987) stated that females have a wider social network than males and males tend to heavily rely on their spouses for social support. Social isolation and loneliness have increased over the years (Rajan, 2006). In a study done by Lena *et al.* (2009) almost half of the respondents felt neglected and sad and felt that people had an indifferent attitude towards the elderly. It was also found that 47 per cent feel sad in life and 36.2 per cent felt they were a burden to the family. The elderly decrease in the frequency of visits to religious places decreases the interaction with social network, companionship and needed counseling, coping mechanism and emotional support which all harm social support. Lack of social support was a significant predictor of depression for women, while this was not the case for men (Huang *et al.*, 2011).

Social support literature indicates that specifically spousal relationships appear to be more central to the emotional well-being of men than women (Dykstra and de Jong Gierveld, 2004). Mental health status differs from male individuals to female individuals. Agarawal *et al.* (2002) conducted a study on depressed and no depressed elderly. The results pointed out that depressing events were significantly more among females as compared to male. Women appear to be sensitive to levels of social support, and may experience more detrimental consequences to mental health when support is lacking, as the mental health of women is worse than that of men and the proposed explanation might be as women face greater exposure to life stressors and range of biosocial factors.

Family Support, Size of Family and Mental Health

The study conducted by Ramachandran *et al.* (1981) on family structure and mental illness in old age revealed that mental illness was higher in old age, and with subjects living in small size family. Taqui *et al.* (2007) carried out a study on depression in the elderly: Does family system play a role? A cross-sectional study with a sample of 400 elderly people revealed that those who were living in a nuclear family system were more likely to have depression than those who were living in the joint family system. Arif and Pallavi, (2016) showed that the scores on family social support, friends' social support, and significant other social support were higher in female as compared to males and a significant difference was found in all the domain of perceived social support.

Social pressure and scarce resources create many dysfunctional attitudes in elderly such as attitudes towards old age, deprivation of status in the community; problems of isolation, loneliness, and the generation gap are the well-known driving forces resulting in socio-psychological frustration among the elderly (Mohanty, 1989). Family support is found to be a significant factor for socio-psychological well-being of the elderly (Devi and Murugesan, 2006).

Elderly Economic Dependency

Economic conditions are the most important determinant of life satisfaction among the elderly (Jung *et al.*, 2010). Elderly live with their children in India (Bloom *et al.*, 2010), and their economic security and well-being are mainly dependent on the economic capacity of the family unit (Siva Raju, 2011). According to 52nd round of the National Sample Survey Organization, nearly half of the elderly are fully dependent on others, while another 20 per cent are partially dependent for their economic needs [NSSO, 1998]. The situation was even worse for elderly females [GOI, 2011]. Females depend on others, given economic dependency, lower literacy and higher incidence of widowhood among them (Gopal, 2006). The challenge to the welfare of the older person is poverty, which is a multiplier of risk for abuse (Shenoy, 2014). Migration of youth, lack of proper care in the family, insufficient housing, economic hardship and the break-up of joint family have made the old age homes seem more relevant even in the Indian context (Bajwa, Buttar, 2002).

Quality of Life (QOL) of Elderly

The Quality Of Life (QOL) of the elderly is a global challenge for the twenty-first century. Studying the quality of life of the elderly plays a significant role in social planning. Quality of Life is defined by Barcaccia (2013, p. 1) as ‘the general well-being of persons and societies, outlining negative and positive features of life.’ Andelman *et al.* (1998, p. 3) focused on the quality of life (QOL) and emphasized that ‘quality of life aggregates the seven domains like well being, health, productivity, intimacy, safety, community, and the emotional well-being. Two important indicators used in quality of life, i.e. objective approach and the subjective approach. The objective approach focuses on individual capacities to meet their needs with available resources like health, income, education, amenities, justice, etc. Whereas, the subjective approach focuses on the individual perception of his life or psychological state of mind.

Good health is a very important dimension of QOL to elderly people as it enables them to continue working and functioning independently. Health is an important indicator of human capabilities which is essential for a good QOL (Sen, 1985). Quality of life (QOL) is

evaluated on the following indicators like adaptation and resilience, health, social contacts, dependency, material circumstances, and social comparisons. Policymakers, researchers, clinical practitioners, social workers, national and international NGOs and geriatric agencies have been working hard to enhance how the elderly can achieve optimum quality of life. To enjoy the QOL, elderly need belonging to the society and community in which they live, which emphasize their acceptance and access to community resources by and large.

Chronic Diseases and QOL in Elderly

Chronic diseases such as cardiovascular diseases (coronary heart disease), hypertension, stroke, diabetes, cancer, chronic obstructive pulmonary disease, musculoskeletal conditions (arthritis and osteoporosis), mental health conditions (dementia and depression) and blindness and visual impairment, etc. (WHO, 1998) are most common in elderly people. These chronic diseases cause medical, social and psychological problems in the elderly, which can decrease physical functions and the QOL in the elderly. In old age, there is a greater probability of social disruptions such as bereavement, social isolation, physical disability, and cognitive decline, all of which contribute to depression and affects QOL (Shear *et al.*, 2005). The QOL index of elderly is absolutely influenced by higher educational status, involvement in decision making, satisfaction with general health, level of stress and marital status (i.e. married). But factors like the advanced age of elderly, acute and chronic morbidity, living alone, financial difficulties and experience of abuse are negative influences on the QOL index of elderly (UNFPA, 1999).

The Decrease in Elderly Satisfaction of Health and Accessibility to Health Care

Health is one of many dimensions contributing to the overall quality of life (Rathore, 2009). The stress caused by illness and the following treatment may surpass one's ability to cope, thus negatively affecting the quality of life (QOL). Quality of life is an important measure in order to evaluate the medical therapy of chronic diseases. Older age is one of the situations when quality of life will be decreased due to stressors. As a result of the lack of family support or reduced social support networks, elderly people might experience loneliness and may face physical and emotional health problems.

Lack of physical health infrastructure and drugs in primary health centers, unaffordable medicines and treatment are major restraints for providing health care access to the aged. The other issues are lack of diagnostic infrastructure, limited manpower, poor quality of care and overcrowding in healthcare facilities due to insufficient focus on elderly care (FICCI-Deloitte, 2014)

Daycare centers, old age residential homes, counseling and recreational facilities for the elderly are urban-based and not available to all the elderly. The geriatric outpatient department services are mostly available at tertiary care hospitals (Mane *et al.*, 2014). As 75 per cent of the elderly live in rural areas, accessibility to geriatric health care services is challenging. Dhar (2005) has pointed out the neglect in the provision of facilities for geriatric patient care as well as training and development of human resource in geriatrics in the Indian public health context is challenging. As pointed out by Dey *et al.* (2012), the basic challenges to access and affordability of health care services for elderly population includes reduced mobility, social and structural barriers, wage loss, familial dependencies, and declining social engagement. The stigma of aging is a further social barrier to access of health in addition to the health and social conditions the elderly normally face such as dementia, depression, incontinence and widowhood (Patel, Prince, 2001). Giving access to nursing care, social support levels, medical therapy, education and counseling to the elderly, in particular to women widows, could improve QOL.

Conclusion

As two-thirds of elderly population live in rural areas, geriatric health care services must be delivered in primary health care centers, which require training of healthcare professionals in geriatrics. The elderly must be sensitized on legal protections offered by the government of India and improve accessibility to various social welfare policies. Policymakers must focus on capacity building of health care staff working in primary health care centers, NGO's, family members, caregivers, etc. on the care of elderly which has a direct impact on improving the QOL of elderly.

Research on QOL, Activity of Daily Living (ADL), functional status, chronic diseases, etc. of elderly needs to be encouraged and further strengthened. Maintenance and improvement in Quality Of

Life should be included among the goals of the welfare of the geriatric population. Medico-social services for the elderly must be prioritized in rural health care settings. Improving the Quality Of Life of elderly needs a holistic approach and concerted efforts by the various stakeholders like government and health-related sectors, family and caregivers, etc.

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General Well Being and Life Satisfaction of Elderly in Kolkata, India

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ABSTRACT

Ageing brings with itself a series of problems ranging from physical, psychological to economic, for individuals and societies. The present study is based on a primary research among 200 elderly men and women between 60 and 80 years residing in the city of Kolkata. It aims at analysing their General Well Being and Life Satisfaction and assessing the relationship between the two. Statistical analysis using multiple correlation, coefficient of correlation and z test were administered, along with descriptive statistics. It was found that the most significant determinant of the overall General Well being was found to be the Psychological Well Being followed by Active Life-Style, Self-Awareness, Happiness, Positivity, Physical Well Being and so on. High positive correlation was found between General Well Being and Life Satisfaction of the respondents. The study also found that there was no significant difference in the General Well Being between the older men and women.

Key words: Ageing, Elderly, General Well-being, Life satisfaction

India is ageing at a fast rate. The elderly population has increased from 19.8 million in 1951 to 76 million in 2001, and 103.8 million in 2011. As per the World Ageing Report, it is estimated that the number

of elder persons could increase from 8 per cent in 2015 to 19 per cent in 2050 (United Nations, 2018). The projection also indicates that the number of 60+ in India will increase to 143.20 million in 2021 and 173.2 million in 2026 (Ministry of Social Justice and Empowerment, 2018; Dey, 2018). Modern medical science and innovation has greatly enhanced the life expectancy of individuals across the world resulting in a situation where a person survives more number of years as an elderly (Lichtenberg, 2015). However, increase in life expectancy does not indicate improvement in the quality of life at old age. Healthy life expectancy considers not just mortality but also the impact of nonfatal conditions and summarizes years lived with disability and years lost due to premature mortality. The increase in healthy life expectancy has not been as dramatic as the growth of life expectancy, as a result of which people are living more years with illness and disability (Murray *et al.*, 2015). Ageing brings with itself a series of problems ranging from physical, psychological to economic for individuals, societies and healthcare systems (Lunenfeld and Stratton, 2013). There are challenges which include adapting and coping with change and loss, increased illness of self and spouse, vulnerability to mental disorders, cognitive decline and greater limitations in physical functioning. It is therefore necessary to understand the General Well Being and Life Satisfaction among the elderly.

According to the Centre of Disease Control and Prevention, Well being is a positive outcome that is meaningful for people and for many sectors of society, because it tells us that people perceive that their lives are going well (Well Being Concepts, 2018). The most important dimension of well being at old age remains with active engagement in household work, economic independency, and social support along with relationship within the family environment. Several studies show that psychological well being remains stable or even increases with age so that, despite biological and social changes in aging, life satisfaction does not necessarily decrease in later life (Mercier, Peladeau and Tempier, 1998). While some other studies have traditionally viewed late life as a time of emotional flattening and disengagement, recent research has suggested that older adults remain emotional beings who experience a full range of emotions, and also seem more adept than

their younger counterparts at avoiding negative affective states (Carstensen *et al.*, 2001).

General Well Being in the present study has been determined on the basis of 12 factors as discussed below (Chauhan and Didwania, 2012):

- *Physical Well Being*: The lifestyle behavior choices one makes to ensure health, and avoid diseases to live in a balanced state of body, mind and spirit.
- *Psychological Well Being*: Psychological well being is a very subjective term but from all the research that has been carried out, the term is used as kind of a ‘catch-all phrase’ meaning contentment, satisfaction with all elements of life, self-actualization (a feeling of having achieved something with one’s life), peace and happiness.
- *Social Well being*: Social well being is the extent to which one feels a sense of belonging and social inclusion; a connected person is a supported person in society.
- *Happiness*: It is a state of well being that encompasses living a good life – i.e., with a sense of meaning and deep satisfaction.
- *Spiritual well being*: It can be associated with a specific religion but does not have to be. This practice is merely one’s own journey to discover things of importance in life as well as one’s place among them.
- *Cultural wellness and Religious well being*: It implies understanding, awareness and intrinsic respect for aspects of diversity. Religious well being involves seeking of meaningful human existence and purpose of life, through prayer, meditation, and reflection, or through various activities and practices associated with a religious belief or tradition.
- *Active Lifestyle*: A lifestyle that contributes positively to physical, mental and social well being. It includes regular exercise, and physical activity.
- *Positivity*: The practice of being or tendency to be positive or optimistic in attitude.

- *Economic Independency*: The ability of a person to financially support themselves.
- *Self-Awareness*: It is the capacity for introspection and ability to recognize oneself as an individual separate from the environment and other individuals.
- *Family Relations*: It is the interaction of social, psychological and behavioral factors among various members of the nuclear family and the extended family.
- *Environmental Adjustment*: The process of adapting to your environmental conditions is also called an adjustment.

Life satisfaction indicates social and personal satisfaction as well as general happiness. Analysis of past research studies has suggested that life satisfaction is positively related with some personality factors such as self-esteem, Self Confidence (Cheng and Furnham, 2002), while some other personality traits such as neuroticism, psychoticism, and pessimism are the negative predictors of life satisfaction (Eysenck 1990; Furnham and Cheng, 1990). Also, cultural factors including the level of education, type of living were variables influencing the overall life satisfaction index (Chehregosha, 2016). Other predictors of life satisfaction are family, access to recreational facilities, type of settlement and, access to available facilities (Mehrotra *et al.*, 2018).

The city of Kolkata in the state of West Bengal has the highest number of elderly and the lowest number of 20+ age-group in India. According to the 2011 Census, Kolkata had 11.76 per cent of elderly population which is highest among all the other metro cities (Delhi, Mumbai, Chennai and Bangalore). It is reported that 6.13 per cent (2,75,996) are elderly male and 5.63 per cent (2,53,158) are female (Government of India, 2011). With the increase in life expectancy it becomes necessary for the Government to take immediate actions to ensure that the elderly live a dignified and secure life. A study by the United Nations Population Fund (UNFPA) revealed that in the city of Kolkata, and the rest of Bengal, the social engagements of elderly was shockingly minimal. More than 78 per cent of the elderly population surveyed by UNFPA said that they didn't attend any social event in a year's time (UNFPA, 2011).

The aim of this study is (a) to determine the factors that influence the General Well Being, and to further assess the relationship between them; (b) to find if there exists any relationship between the General Well Being and Life satisfaction; and (c) investigate if there exists a significant difference in General Well Being and Life Satisfaction between the elderly male and female of Kolkata.

Empirical Background

Research on the life satisfaction at old age has been found to be determined by several factors, with social, physical, mental and financial aspects as interactive variables. These factors need to be given importance when taking care of elderly (Borg, Hallberg and Blomqvist, 2006). On examining the relationship between family relations and life satisfaction, a study concluded that support from children was associated with life satisfaction for older people. Family relations exerted significant impact on life satisfaction of older people with different resident status as was observed in mainland China (Yunong, 2012). Another study in the state of Jammu & Kashmir aimed to find whether there existed any relationship between physical health and life satisfaction, and between mental health and life satisfaction. The research indicated both physical health and mental health being negatively related to life satisfaction in old age (Choudhary, 2015).

In the context of life satisfaction at old age, a study from the state of Rajasthan aimed to understand the perceptions and issues faced by the elderly in their daily lives, when living with the family. Male respondents reported finding it hard managing their finances, i.e. they had economic issues while the female respondents faced difficulties with social adjustment. Both genders also identified health issues as a major problem (Narang *et al.*, 2013).

A study from the Indian state of Harayana explored the effect of gender on the subjective well being of old people. The authors worked on the premise that there existed a large gap in well being due to gender differences. Results found that elder men have higher level of subjective well being in comparison to women. However, in some domains, such as expectation achievement incongruence, confidence

in coping, transcendence, family group support, inadequate mental mastery, and deficiency in social contacts they were found to be at par (Budhiraja and Middha, 2015). In another study in Brazil to comparing the relationship between coping and subjective well-being of elderly, it was found that among all the coping strategies, the most used were the Religious Practices (Nunes *et al.*, 2016). The above studies signify how Well Being and Life Satisfaction are two interrelated factors which need due attention when dealing with the elderly.

Method

Location and Participants

The geographical location of the study was restricted to the city of Kolkata. Purposive sampling was used for data collection. Keeping in mind the objectives of the study, there were certain criteria used for identification of persons with particular characteristics for the sample (see below). The sample size was fixed at 200 (100 male and 100 female respondents). Two sets of standardized questionnaires (General Well Being Scale and Life Satisfaction Scale) were administered. The researcher carried out home visits for collecting data. Most of the respondents filled the questionnaires by themselves with assistance from the researcher as and when required. Since the questions were in English, they had to be explained in Bengali or Hindi depending upon the comfort of the respondents. Informed consent was obtained from all participants. They were aware that they could withdraw from the interview at any point of time. The criteria for sample selection was:

1. Male and Female between 60–80 years
2. Respondents from Middle socio-economic background;
3. Living in Nuclear families;
4. Elderly who are physically independent

Tools for the Study

General Well Being Scale (GWBS-CVDR, 2015) by V. L. Chauhan and R.K. Didwania, and Life Satisfaction Scale (LSS-OH, 2005) by HardeoOjha were used to gather responses. Cronbach's alpha was calculated on both of the standardized scales (GWBS and LSS) to

retest its reliability. It was found to be 0.861 for GWBS, and 0.808 for LSS. Data were entered in Microsoft Excel spreadsheet and statistical analysis was conducted using the same. Socio-economic status of the respondents was assessed using modified B. Kuppaswamy's Manual of Socioeconomic Status (urban).

Statistical Methods

To study the factors influencing the General Well Being of the elderly, multiple correlation was used. The independent variables were then ranked from most important and least important according to their correlation with the overall General Well Being. In order to determine if there existed any relationship between the General Well Being and Life Satisfaction of the elderly, Co-efficient of correlation has been calculated. To investigate if there exists a significant difference in General Well Being of elderly male and female of Kolkata, hypothesis testing was done using 'z' test. Also, descriptive statistics has been used to compare the data of elderly male and female to understand their differences. It was hypothesized that 'There exists no significant difference in General Well Being of elderly male and female'.

To account for the possible difference in the number of questions in each of the twelve factors of the General Well Being scale, the scores were normalized to ensure equal weights to each category. The same was also done to compare the overall General Well Being and Life Satisfaction.

The median age of the respondents was found to be around 66 years for male and 65 years for female respondents which is relatively younger within the preset age criteria of our study (see Table 1).

Table 1
Age Demographics of the Sample

<i>Gender</i>	<i>Mean Age</i>	<i>Median Age</i>	<i>Modal Age</i>
Female	67	65	60
Male	68	66	61

Ethical Consideration

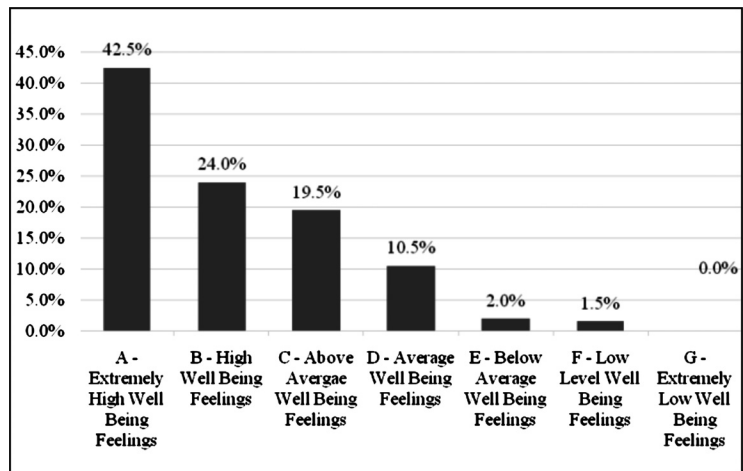
The respondents were briefed about the purpose of the study. Data have been gathered in honest and independent manner by the voluntary association of respondents who chose to actively participate in this research. Confidentiality of the respondents has been observed throughout the study.

Results

General Well Being

Analysis of data showed (see Figure 1) that over 42.5 per cent of the respondents experienced “Extremely High Well Being Feelings”. It was found that 10.5 per cent of elderly feel that they have “Average well being feelings” and about 2-4 per cent of them have Below average or Lower level of well being. It has been observed that the elderly around the age of 60–70 have higher General Well Being than their older contemporaries. It is seen that a majority of respondents with average or lower well being are above the age of 70 years.

Figure 1
General Well Being of the Elderly in Kolkata



Multiple correlation shows *Psychological Well Being, Active Life-Style and Self-Awareness, happiness, and positivity* are the top five factors that influence the General Well Being of an elderly. They are

followed by *Physical Well Being, Environmental Adjustment, Social, Cultural and Religious Well Being, Family Relations, Spiritual Well-Being and Economical Independency* indicating that they have relatively lower influence.

Correlation between the factors shows that *Spiritual Well Being* and *Economical Independency* have a negative correlation indicating a negative relationship. The same has also been observed in case of *Physical Well Being* and *Economical Independency* (see Table 2). It is also noted that among the elderly who have reported an average or lower level of *General Well Being* have highest levels of *Economical Independency*, followed by *Family relation*; and *Cultural and religious well being* and lowest levels of *Self Awareness* followed by *Physical well being, Psychological well being* (in the same order).

Results from the life satisfaction scale indicate that over 1/5th of the respondents feel (23%) that they are about "Average Satisfied". While increasing age has been found to be a significant factor behind the deterioration of Life Satisfaction, most of the elderly with 'Average Life Satisfaction' or below were found to be living alone, or only with their spouse or a full time domestic help (as in case of widowed). Due to their children being employed away from home, they reported to be facing difficulties in dealing with loneliness, loss of social interaction and fear of deteriorating health.

Relationship between General Well Being and Life Satisfaction

Coefficient of correlation between *General Well Being* and *Life Satisfaction* was found to be 58.7 per cent indicating a positive relationship between *General Well Being* and *Life Satisfaction*. Analysis showed, *Psychological well being* having highest correlation with the life satisfaction, followed by *Physical well being, Self Awareness, Active Life style and Happiness*. *Economic independency* has the lowest correlation with *Life Satisfaction*.

Hypothesis

Hypothesis testing shows the score obtained from 'z test' (two tails) of *General Well Being* of the male and female sample was found to be -1.4805. At $\alpha = 0.05$, the z critical value is set at ± 1.96 , z score was found to be within the acceptance region.

Therefore, the hypothesis was accepted, it can be said that there is no significant difference between the General Well Being of the male and the female elderly in the city of Kolkata.

Table 3
Z test (two tail) Computed with Elderly Sample of Male and Female.

	<i>Female</i>	<i>Male</i>
Mean	3.7382	3.8116
Known Variance	0.1182	0.1276
Observations	100.0000	100.0000
Hypothesized Mean Difference	0.0000	
Z	-1.4805	
P(Z < = z) two-tail	0.1387	
z Critical two-tail	1.9600	

Relationship between General Well Being and Life Satisfaction

Coefficient of correlation between General Well Being and Life Satisfaction was found to be 58.7 per cent indicating a positive relationship between General Well Being and Life Satisfaction. Analysis showed, *Psychological well being* having highest correlation with the life satisfaction, followed by *Physical well being*, *Self Awareness*, *Active Life style*, *Happiness* and so on. Economic independency has the lowest correlation with Life Satisfaction.

Therefore, the hypothesis was accepted, it can be said that there is no significant difference between the General Well Being of the male and the female elderly in Kolkata.

Discussion

The transition to old age has impact on a person physically, emotionally, cognitively and socially. During this time, the elderly are mostly dependent on their children and consistently need support of family members who they can trust and share their concerns. With the rising elderly population and changing urban demographics, the topic of General Well Being has been dealt with in this paper.

In this study it has been found that among the variables influencing General Well Being, the Psychological Well Being, Active

Life-Style, Self-Awareness, Happiness and Positivity, and Physical Well being have been found to be most dominant, indicating that economical independency, social well being or other factors are less relevant in old age. This is in congruence with another study where it was found that physical health is positively associated with post-retirement well being for men and women (Pothisiri *et al.*, 2016). It is also noted that among elderly who have reported an average or lower level of General Well Being, have highest levels of Economic Independency, and lowest levels of Psychological well being. Respondents with a higher economic independency have shown lower levels of Physical and Spiritual Well Being (Gonzalez and Rioux, 2013).

There exists a positive correlation between General Well Being and Life Satisfaction (58.7%). In this study we identified that a significant number of elderly (59.5%) have reported a lower life satisfaction than their General Well Being. The findings of the present research show that an aggregate of 86 per cent of elderly have an above average level of General Well Being. 10.5 per cent of elderly have reported an 'Average Level of Well Being' while 2 per cent had 'Below Average' and the other 1.5 per cent with 'Low Well Being'. Poor General Well Being has been associated with several factors such as increasing age, distance from children and loved ones and family environment which reduces the Psychological well being.

Age was found to be a significant determinant of both General Well Being and Life Satisfaction. Thus, even within the elderly population, there are differences in experiences. 77 per cent of the respondents have been found to have above average level of Life Satisfaction, about 22.5 per cent and 0.5 per cent of them have reported to have 'average' and 'dissatisfied' level of Life Satisfaction respectively. Elderly who are widowed or are living without their children have been found to be worst affected. On each occasion where an old friend or acquaintance, of the same approximate age passed away, they experienced lack of motivation and were depressed.

Gender as a construct also causes variations in experiences of old age. While it has been argued that men have high level of subjective well being in comparison with women, it has also been accepted that in some domains, such as expectation achievement incongruence,

confidence in coping, transcendence, family group support, inadequate mental mastery, and deficiency in social contacts, they were found to be at par. Hypothesis testing shows that in the sample under consideration, there is 'no significant difference in the General Well Being and Life Satisfaction of the elderly men and women of Kolkata'. Descriptive statistics show that the median and modal value of women is lower than their male counterparts and the standard deviation of the female General Well Being and Life Satisfaction is higher (as seen in Table 4). It can be therefore inferred that there is a wider variation or spread in the General Well Being and Life Satisfaction of women.

Table 4
Descriptive Statistics Comparing the Male and Female Respondents

	<i>General Well Being</i>		<i>Life Satisfaction</i>	
	<i>Female</i>	<i>Male</i>	<i>Female</i>	<i>Male</i>
Mean	3.74	3.81	3.27	3.41
Standard Error	0.03	0.04	0.05	0.05
Median	3.69	3.92	3.28	3.45
Mode	3.66	4.14	2.85	2.90
Standard Deviation	0.34	0.36	0.53	0.51
Sample Variance	0.12	0.13	0.28	0.26

With a change in population demographics, it is critical that effective plans are developed and implemented by the Government to ensure that the needs of the elderly are catered to. It is necessary to assist well being and livelihood of the elderly who are mostly dependent on others. Keeping in line with the policies of the Central Government, the Government of West Bengal introduced the West Bengal Maintenance and Welfare of Parents and Senior Citizens Rules, 2008 (Bare Acts Live, 2008). It mandates to ensure livelihood of the aged parents by imposing strict penalties and imprisonment on adoptive or own children who refuse to provide accommodation, food, medicines and recreational facilities. Also, the Kolkata Police has initiated a Senior Citizens helpline number to ensure a supportive environment is provided around the clock. However, it has been noted that some of the respondents have shown resentment towards

the Government for the lack of opportunity for higher education and jobs in the city which has resulted in the migration of their children away from home (Khanna, 2013).

Conclusion

Psychological well being has been shown to be the most significant determinant of the overall General Well being followed by Active Life-Style, Self-Awareness, Happiness, Positivity, Physical Well Being and so on. Even though a majority of the elderly within the age of 60–70 years experience “Above Average Well Being” feelings, it tends to deteriorate as they grow older. However, such progressive deterioration can be avoided or minimized if there exist family support and social interaction. Although there is a positive relationship between General Well Being and Life satisfaction, there exists a difference in experience. Coefficient of Correlation between the factors of General Well Being and Life Satisfaction indicates high degree of positive association between *Psychological Well being* and Life Satisfaction. It has a moderate correlation between *Physical Well Being, Self Awareness, Active Lifestyle, Happiness, and Family Relations*. As observed during this study, respondents have reported diminished life satisfaction even with a compared higher level of General Well Being. This study concludes that there exists no significant difference in the General Well Being of the elderly male and female in the city of Kolkata.

Limitations

This study provides a quantitative analysis of the elderly well being. There remains scope for capturing the subjective experiences through further descriptive analysis of the factors associated with the life satisfaction and well-being among older people.

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Activities of Daily Living among Elderly People – Age and Gender Differences

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ABSTRACT

The purpose of this study was to assess the effect of age and gender differences in performance of activities of daily living among 400 older people (male=163 and female=237), aged 60 years and above, selected by the method of convenience sampling from urban and rural areas of SPSR Nellore district (A.P.). The quantitative research approach and descriptive design were adopted for the study. A structured interview schedule was used for collecting information from the respondents individually. Data analysis was done by using descriptive and inferential statistics. The findings of the study revealed that In the age group 60–70 years, there is statistically significant association between men and women the activities of daily living that are totally done by a woman such as preparing food by self ($p < 0.05$), ability to do housework ($p < 0.05$), ability to wash clothes ($p < 0.05$), ability to go shopping ($p < 0.05$). In the age group between 71–80 years, the researchers did not observe any significant gender differences in any of the activities of daily living. There was a significant difference in performing all the activities of daily living among older adults across a spectrum

of age. However, women consistently reported more problems than men in those activities that are done by a woman.

Key words: Gender, Elderly People, Activities of daily living, Ageing.

Ageing is defined as a study of all aspects of the ageing process, including the clinical, psychological, economic, and sociological issues encountered by older persons and their consequences for both the individual and society (Verbrugge, L.M. 1994 and Wilkinson, J.A. 2004). With increasing longevity comes an increasing chronic illness which leads to decline in functional ability, dependence and poor quality of life (Birren, J.E., *et al.*, 2001; Ansah, J.P., *et al.*, 2016; Prasad, R. 2017).

Gender differences are variances between males and females that are based on biological adaptations that are the same for both sexes (Tomioka, K. *et al.*, 2017). Activities of daily living means things we normally do in daily living including any daily activity we perform for self-care such as feeding ourselves, bathing, dressing, grooming, work, homemaking, and leisure. The ability or inability to perform ADLs can be used as a very practical measure of ability/disability in many disorders (Alexandre, Tda S., *et al.* (2012). Even though many of the diseases or conditions common to later life are experienced by both men and women, the actual rates, trends, and specific types differ between the sexes. While some of these differences are the result of physiological differences, to fully understand ageing and health a gender perspective is required. The aim of the study was to test the association between age and gender differences in the performance of activities of daily living among elderly people.

Method

Sample

400 elderly persons (Male = 163 and female = 237) age varying from 60 years and above, who could speak Telugu or English, and were willing to participate in the study were selected by the method of convenience sampling method from rural (Rajeev colony) and urban (Uco Nagar) areas of Nellore district.

Description of the Tool Used

The structured interview schedule was used in the study, which consists of 2 sections, namely Section A and Section B.

- Section 'A': Structured interview schedule consists of questions seeking the socio-demographic data
- Section – 'B': Consists of a checklist on activities of daily living which consist of 20 questions.

Descriptive research design was adopted for the present study. The investigator personally interviewed the subjects to elicit the information. It took about 20-30 minutes to conduct interview for each subject. The study was conducted over six months from 12th Feb to 10th Aug 2019.

Analysis of Findings

The data analysis was performed by using statistical software IBM SPSS version 24.0. Chi-square test was used to test the association between age and gender differences across activities of daily living. All the 'p' values are having <0.05 are considered as statistically significant.

Results

Majority of respondents (66%) were between 60–70yrs, females (59.3%), living in rural areas (71%), not working at present (78%), income status is above the below poverty line (61.0%), eating two meals/day (77%), not doing any exercises (80.8%), using old age government – schemes (51%). Only (11%) were living alone and (30%) do not have family support. (Table 1).

In the age group 60–70 years, there is statistically significant association between men and women, the activities of daily living that are totally done by a woman such as preparing food by self ($p < 0.05$), ability to do housework ($p < 0.05$), ability to wash clothes ($p < 0.05$), ability to go shopping ($p < 0.05$). In the age group between 71–80 years, we did not observe any significant gender differences in any of the activities of daily living. (table 2).

We found significant association between place of residence and activities of dialy living with respect to ($p < 0.05$) and we found

significant association between exercises and activities of daily living with respect to ($p < 0.05$) such as preparing food by self ($p < 0.05$), ability to do housework ($p < 0.05$), ability to wash clothes ($p < 0.05$), ability to go shopping ($p < 0.05$). (Table 3 and 4)

Table 1
Socio-demographic Characters

<i>Variable</i>	<i>Parameter</i>	<i>Number</i>	<i>%</i>
Age	60-70	265	66%
	71-80	135	34%
Gender	Male	163	41%
	Female	237	59%
Residence	Urban	117	29%
	Rural	283	71%
Working	Yes	100	25%
	No	300	75%
Income	BPL	105	26%
	A-BPL	204	51%
	MC	47	12%
	UC	44	11%
Living with	Alone	45	11%
	Spouse	153	38%
	Children	97	24%
	Spouse and Children	83	21%
	Relatives	22	6%
Food intake/day	One	37	9%
	Two	307	77%
	Three	56	14%
Exercise	Yes	77	19%
	No	323	81%
Family Support	No	118	30%
	Always	93	23%
	Occasional	127	32%
	Rare	62	16%
Using Old age Schemes	Yes	205	51%
	No	195	49%

Table 2
Age and Gender Differences in Activities of Daily Living among Elderly

Activities of daily living	60–70 Years, N = 265						71–80 Years, N = 135						Total, N = 400						P value	
	Male, N = 96			Female, N = 169			Male, N = 67			Female, N = 68			Male, N = 163			Female, N = 237				
	N	%	n	%	n	%	N	%	n	%	n	%	N	%	n	%	n	%		
ADLQ1	D	2	2.10%	6	3.60%	6	9.00%	6	9.00%	5	7.40%	8	4.90%	11	4.60%	11	4.60%	11	4.60%	> 0.05
	IN	94	97.90%	163	96.40%	61	91.00%	61	91.00%	63	92.60%	155	95.10%	226	95.40%	226	95.40%	226	95.40%	> 0.05
ADLQ2	D	2	2.10%	7	4.10%	6	9.00%	6	9.00%	7	10.30%	8	4.90%	14	5.90%	14	5.90%	14	5.90%	> 0.05
	IN	94	97.90%	162	95.90%	61	91.00%	61	91.00%	61	89.70%	155	95.10%	223	94.10%	223	94.10%	223	94.10%	> 0.05
ADLQ3	D	2	2.10%	2	1.20%	3	4.50%	3	4.50%	6	8.80%	5	3.10%	8	3.40%	8	3.40%	8	3.40%	> 0.05
	IN	94	97.90%	167	98.80%	64	95.50%	62	91.20%	62	91.20%	158	96.90%	229	96.60%	229	96.60%	229	96.60%	> 0.05
ADLQ4	D	2	2.10%	5	3.00%	6	9.00%	6	9.00%	7	10.30%	8	4.90%	12	5.10%	12	5.10%	12	5.10%	> 0.05
	IN	94	97.90%	164	97.00%	61	91.00%	61	91.00%	61	89.70%	155	95.10%	225	94.90%	225	94.90%	225	94.90%	> 0.05
ADLQ5	D	4	4.20%	7	4.10%	8	11.90%	8	11.90%	9	13.20%	12	7.40%	16	6.80%	16	6.80%	16	6.80%	> 0.05
	IN	92	95.80%	162	95.90%	59	88.10%	59	88.10%	59	86.80%	151	92.60%	221	93.20%	221	93.20%	221	93.20%	> 0.05
ADLQ6	D	3	3.10%	10	5.90%	7	10.40%	7	10.40%	9	13.20%	10	6.10%	19	8.00%	19	8.00%	19	8.00%	> 0.05
	IN	93	96.90%	159	94.10%	60	89.60%	59	86.80%	59	86.80%	153	93.90%	218	92.00%	218	92.00%	218	92.00%	> 0.05
ADLQ7	D	3	3.10%	10	5.90%	7	10.40%	7	10.40%	9	13.20%	10	6.10%	19	8.00%	19	8.00%	19	8.00%	> 0.05
	IN	93	96.90%	159	94.10%	60	89.60%	60	89.60%	59	86.80%	153	93.90%	218	92.00%	218	92.00%	218	92.00%	> 0.05

Cont'd...

Cont'd...

ADLQ8	D	2	2.10%	2	1.20%	5	7.50%	8	11.80%	7	4.30%	10	4.20%	>0.05
	IN	94	97.90%	167	98.80%	62	92.50%	60	88.20%	156	95.70%	227	95.80%	
ADLQ9	D	5	5.20%	11	6.50%	14	20.90%	14	20.60%	19	11.70%	25	10.50%	>0.05
	IN	91	94.80%	158	93.50%	53	79.10%	54	79.40%	144	88.30%	212	89.50%	
ADLQ10	D	7	7.30%	13	7.70%	17	25.40%	14	20.60%	24	14.70%	27	11.40%	>0.05
	IN	89	92.70%	156	92.30%	50	74.60%	54	79.40%	139	85.30%	210	88.60%	
ADLQ11	D	22	22.90%	40	23.70%	26	38.80%	28	41.20%	48	29.40%	68	28.70%	>0.05
	IN	74	77.10%	129	76.30%	41	61.20%	40	58.80%	115	70.60%	169	71.30%	
ADLQ12	D	76	79.20%	141	83.40%	63	94.00%	63	92.60%	139	85.30%	204	86.10%	>0.05
	IN	20	20.80%	28	16.60%	4	6.00%	5	7.40%	24	14.70%	33	13.90%	
ADLQ13	D	40	41.70%	80	47.30%	45	67.20%	42	61.80%	85	52.10%	122	51.50%	>0.05
	IN	56	58.30%	89	52.70%	22	32.80%	26	38.20%	78	47.90%	115	48.50%	
ADLQ14	D	65	67.70%	99	58.60%	58	86.60%	44	64.70%	123	75.50%	143	60.30%	<0.05
	IN	31	32.30%	70	41.40%	9	13.40%	24	35.30%	40	24.50%	94	39.70%	
ADLQ15	D	90	93.80%	138	81.70%	64	95.50%	59	86.80%	154	94.50%	197	83.10%	<0.05
	IN	6	6.30%	31	18.30%	3	4.50%	9	13.20%	9	5.50%	40	16.90%	
ADLQ16	D	91	94.80%	142	84.00%	63	94.00%	60	88.20%	154	94.50%	202	85.20%	<0.05
	IN	5	5.20%	27	16.00%	4	6.00%	8	11.80%	9	5.50%	35	14.80%	
ADLQ17	D	85	88.50%	133	78.70%	62	92.50%	56	82.40%	147	90.20%	189	79.70%	<0.05
	IN	11	11.50%	36	21.30%	5	7.50%	12	17.60%	16	9.80%	48	20.30%	

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ADLQ18	D	23	24.00%	43	25.40%	28	41.80%	31	45.60%	51	31.30%	74	31.20%	>0.05
	IN	73	76.00%	126	74.60%	39	58.20%	37	54.40%	112	68.70%	163	68.80%	
ADLQ19	D	82	85.40%	138	81.70%	61	91.00%	59	86.80%	143	87.70%	197	83.10%	>0.05
	IN	14	14.60%	31	18.30%	6	9.00%	9	13.20%	20	12.30%	40	16.90%	
ADLQ20	D	82	85.40%	139	82.20%	59	88.10%	59	86.80%	141	86.50%	198	83.50%	>0.05
	IN	14	14.60%	30	17.80%	8	11.90%	9	13.20%	22	13.50%	39	16.50%	

ADL1-Wash room, (eg: going for urinals) ADL2-Toilet, (eg: going for passing stools) ADL3-Brushing, ADL4-Bathing, ADL5-Dressing,ADL6-Cutting nails,ADL7-Comb hair,ADL8-Feeding own,ADL9-Sit to stand,ADL10-lying down to sit,ADL11-Move around house, ADL12-Climb stairs, ADL13-attending telephone calls, ADL14-prepare food, ADL15-House work, ADL16-wash the clothes,ADL17-shopping,ADL18-Take medications on own ,ADL19-Riding Vehicle,ADL20- Managing Money .

Table 3
Place of Residence and Activities of Daily Living among Elderly

	Urban, N = 117				Rural, N = 283				Total, N = 400				P value	
	Male, N = 50		Female, N = 67		Male, N = 113		Female, N = 170		Male, M = 163		Female, N = 237			
	n	%	n	%	n	%	n	%	n	%	n	%		
ADLQ1	D	0	0.00%	2	3.00%	8	7.10%	9	5.30%	8	4.90%	11	4.60%	> 0.05
	IN	50	100.00%	65	97.00%	105	92.90%	161	94.70%	155	95.10%	226	95.40%	
ADLQ2	D	1	2.00%	2	3.00%	7	6.20%	12	7.10%	8	4.90%	14	5.90%	> 0.05
	IN	49	98.00%	65	97.00%	106	93.80%	158	92.90%	155	95.10%	223	94.10%	
ADLQ3	D	0	0.00%	2	3.00%	5	4.40%	6	3.50%	5	3.10%	8	3.40%	> 0.05
	IN	50	100.00%	65	97.00%	108	95.60%	164	96.50%	158	96.90%	229	96.60%	
ADLQ4	D	0	0.00%	2	3.00%	8	7.10%	10	5.90%	8	4.90%	12	5.10%	> 0.05
	IN	50	100.00%	65	97.00%	105	92.90%	160	94.10%	155	95.10%	225	94.90%	
ADLQ5	D	1	2.00%	2	3.00%	11	9.70%	14	8.20%	12	7.40%	16	6.80%	> 0.05
	IN	49	98.00%	65	97.00%	102	90.30%	156	91.80%	151	92.60%	221	93.20%	
ADLQ6	D	2	4.00%	3	4.50%	8	7.10%	16	9.40%	10	6.10%	19	8.00%	> 0.05
	IN	48	96.00%	64	95.50%	105	92.90%	154	90.60%	153	93.90%	218	92.00%	
ADLQ7	D	2	4.00%	3	4.50%	8	7.10%	16	9.40%	10	6.10%	19	8.00%	> 0.05
	IN	48	96.00%	64	95.50%	105	92.90%	154	90.60%	153	93.90%	218	92.00%	
ADLQ8	D	1	2.00%	2	3.00%	6	5.30%	8	4.70%	7	4.30%	10	4.20%	> 0.05
	IN	49	98.00%	65	97.00%	107	94.70%	162	95.30%	156	95.70%	227	95.80%	

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ADLQ9	D	4	8.00%	4	6.00%	15	13.30%	21	12.40%	19	11.70%	25	10.50%	> 0.05
	IN	46	92.00%	63	94.00%	98	86.70%	149	87.60%	144	88.30%	212	89.50%	> 0.05
ADLQ10	D	7	14.00%	4	6.00%	17	15.00%	23	13.50%	24	14.70%	27	11.40%	> 0.05
	IN	43	86.00%	63	94.00%	96	85.00%	147	86.50%	139	85.30%	210	88.60%	> 0.05
ADLQ11	D	16	32.00%	18	26.90%	32	28.30%	50	29.40%	48	29.40%	68	28.70%	> 0.05
	IN	34	68.00%	49	73.10%	81	71.70%	120	70.60%	115	70.60%	169	71.30%	> 0.05
ADLQ12	D	37	74.00%	53	79.10%	102	90.30%	151	88.80%	139	85.30%	204	86.10%	> 0.05
	IN	13	26.00%	14	20.90%	11	9.70%	19	11.20%	24	14.70%	33	13.90%	> 0.05
ADLQ13	D	20	40.00%	28	41.80%	65	57.50%	94	55.30%	85	52.10%	122	51.50%	> 0.05
	IN	30	60.00%	39	58.20%	48	42.50%	76	44.70%	78	47.90%	115	48.50%	< 0.05
ADLQ14	D	33	66.00%	28	41.80%	90	79.60%	115	67.60%	123	75.50%	143	60.30%	< 0.05
	IN	17	34.00%	39	58.20%	23	20.40%	55	32.40%	40	24.50%	94	39.70%	< 0.05
ADLQ15	D	49	98.00%	48	71.60%	105	92.90%	149	87.60%	154	94.50%	197	83.10%	< 0.05
	IN	1	2.00%	19	28.40%	8	7.10%	21	12.40%	9	5.50%	40	16.90%	< 0.05
ADLQ16	D	48	96.00%	51	76.10%	106	93.80%	151	88.80%	154	94.50%	202	85.20%	< 0.05
	IN	2	4.00%	16	23.90%	7	6.20%	19	11.20%	9	5.50%	35	14.80%	< 0.05
ADLQ17	D	44	88.00%	45	67.20%	103	91.20%	144	84.70%	147	90.20%	189	79.70%	< 0.05
	IN	6	12.00%	22	32.80%	10	8.80%	26	15.30%	16	9.80%	48	20.30%	> 0.05
ADLQ18	D	13	26.00%	16	23.90%	38	33.60%	58	34.10%	51	31.30%	74	31.20%	> 0.05
	IN	37	74.00%	51	76.10%	75	66.40%	112	65.90%	112	68.70%	163	68.80%	> 0.05
ADLQ19	D	40	80.00%	43	64.20%	103	91.20%	154	90.60%	143	87.70%	197	83.10%	> 0.05
	IN	10	20.00%	24	35.80%	10	8.80%	16	9.40%	20	12.30%	40	16.90%	> 0.05
ADLQ20	D	40	80.00%	43	64.20%	101	89.40%	155	91.20%	141	86.50%	198	83.50%	> 0.05
	IN	10	20.00%	24	35.80%	12	10.60%	15	8.80%	22	13.50%	39	16.50%	> 0.05

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Table 4
Exercise and Activities of Daily Living among Elderly

	Exercise N=77				No-exercise, N=323				Total N=400				P value	
	Male, N=36		Female, N=41		Male, N=127		Female, N=196		Male, N=163		Female, N=237			
	n	%	n	%	n	%	n	%	n	%	n	%		
ADLQ1	D	1	2.80%	1	2.40%	7	5.50%	10	5.10%	8	4.90%	11	4.60%	>0.05
	IN	35	97.20%	40	97.60%	120	94.50%	186	94.90%	155	95.10%	226	95.40%	
ADLQ2	D	1	2.80%	2	4.90%	7	5.50%	12	6.10%	8	4.90%	14	5.90%	>0.05
	IN	35	97.20%	39	95.10%	120	94.50%	184	93.90%	155	95.10%	223	94.10%	
ADLQ3	D	1	2.80%	0	0.00%	4	3.10%	8	4.10%	5	3.10%	8	3.40%	>0.05
	IN	35	97.20%	41	100.00%	123	96.90%	188	95.90%	158	96.90%	229	96.60%	
ADLQ4	D	1	2.80%	1	2.40%	7	5.50%	11	5.60%	8	4.90%	12	5.10%	>0.05
	IN	35	97.20%	40	97.60%	120	94.50%	185	94.40%	155	95.10%	225	94.90%	
ADLQ5	D	1	2.80%	2	4.90%	11	8.70%	14	7.10%	12	7.40%	16	6.80%	>0.05
	IN	35	97.20%	39	95.10%	116	91.30%	182	92.90%	151	92.60%	221	93.20%	
ADLQ6	D	0	0.00%	2	4.90%	10	7.90%	17	8.70%	10	6.10%	19	8.00%	>0.05
	IN	36	100.00%	39	95.10%	117	92.10%	179	91.30%	153	93.90%	218	92.00%	
ADLQ7	D	0	0.00%	1	2.40%	10	7.90%	18	9.20%	10	6.10%	19	8.00%	>0.05
	IN	36	100.00%	40	97.60%	117	92.10%	178	90.80%	153	93.90%	218	92.00%	
ADLQ8	D	0	0.00%	0	0.00%	7	5.50%	10	5.10%	7	4.30%	10	4.20%	>0.05
	IN	36	100.00%	41	100.00%	120	94.50%	186	94.90%	156	95.70%	227	95.80%	

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ADLQ9	D	0	0.00%	3	7.30%	19	15.00%	22	11.20%	19	11.70%	25	10.50%	> 0.05
	IN	36	100.00%	38	92.70%	108	85.00%	174	88.80%	144	88.30%	212	89.50%	
ADLQ10	D	4	11.10%	5	12.20%	20	15.70%	22	11.20%	24	14.70%	27	11.40%	> 0.05
	IN	32	88.90%	36	87.80%	107	84.30%	174	88.80%	139	85.30%	210	88.60%	
ADLQ11	D	8	22.20%	8	19.50%	40	31.50%	60	30.60%	48	29.40%	68	28.70%	> 0.05
	IN	28	77.80%	33	80.50%	87	68.50%	136	69.40%	115	70.60%	169	71.30%	
ADLQ12	D	26	72.20%	35	85.40%	113	89.00%	169	86.20%	139	85.30%	204	86.10%	> 0.05
	IN	10	27.80%	6	14.60%	14	11.00%	27	13.80%	24	14.70%	33	13.90%	
ADLQ13	D	9	25.00%	10	24.40%	76	59.80%	112	57.10%	85	52.10%	122	51.50%	> 0.05
	IN	27	75.00%	31	75.60%	51	40.20%	84	42.90%	78	47.90%	115	48.50%	
ADLQ14	D	22	61.10%	19	46.30%	101	79.50%	124	63.30%	123	75.50%	143	60.30%	< 0.05
	IN	14	38.90%	22	53.70%	26	20.50%	72	36.70%	40	24.50%	94	39.70%	
ADLQ15	D	31	86.10%	30	73.20%	123	96.90%	167	85.20%	154	94.50%	197	83.10%	< 0.05
	IN	5	13.90%	11	26.80%	4	3.10%	29	14.80%	9	5.50%	40	16.90%	
ADLQ16	D	30	83.30%	30	73.20%	124	97.60%	172	87.80%	154	94.50%	202	85.20%	< 0.05
	IN	6	16.70%	11	26.80%	3	2.40%	24	12.20%	9	5.50%	35	14.80%	
ADLQ17	D	26	72.20%	26	63.40%	121	95.30%	163	83.20%	147	90.20%	189	79.70%	< 0.05
	IN	10	27.80%	15	36.60%	6	4.70%	33	16.80%	16	9.80%	48	20.30%	
ADLQ18	D	9	25.00%	6	14.60%	42	33.10%	68	34.70%	51	31.30%	74	31.20%	> 0.05
	IN	27	75.00%	35	85.40%	85	66.90%	128	65.30%	112	68.70%	163	68.80%	
ADLQ19	D	27	75.00%	26	63.40%	116	91.30%	171	87.20%	143	87.70%	197	83.10%	> 0.05
	IN	9	25.00%	15	36.60%	11	8.70%	25	12.80%	20	12.30%	40	16.90%	
ADLQ20	D	27	75.00%	27	65.90%	114	89.80%	171	87.20%	141	86.50%	198	83.50%	> 0.05
	IN	9	25.00%	14	34.10%	13	10.20%	25	12.80%	22	13.50%	39	16.50%	

Discussion

The data shows a significant difference between older men and women with regard to performance of activities of daily living. Older women reported more difficulties in the performance of daily activities than men. In general, the researchers observed that, there is statistically significant association between men and women (specially in the age group 60–70 years) in those activities of daily living which are totally performed by a woman such as preparing food by self ($p < 0.05$), ability to do housework ($p < 0.05$), ability to wash clothes ($p < 0.05$), ability to go shopping ($p < 0.05$). However, in the age group between 71–80 years, researchers did not observe any significant gender differences in any of the activities of daily living. The present study coincides with the study of Zeki Al Hazzouri, *et al.* (2011) conducted on gender differences in physical disability among older adults in underprivileged communities of Lebanon. Strauss E., *et al.* (2003) in their study found that Women are more disabled in basic activities of daily living than men only in very advanced ages.(von).

Alexandre Tda S., *et al.* (2012) also conducted study on “Gender differences in incidence and determinants of disability in activities of daily living among elderly individuals” and found greater disability and diminished quality of life among ageing women compared with men.

Zunzunegui *et al.* (2015) conducted study on the mobility gap between older men and women and found poorer physical function in women. Elena S. Rotarou and Dikaios Sakellariou, (2018) conducted study on Structural disadvantage and (un)successful ageing and reported higher levels of functional limitations in women. Zeki Al Hazzouri A., *et al.* (2011) suggested that the sensitivity of the measures to the social context and gendered environment surrounding daily activities may be underlying causes for differences in functional status between women and men.

Storeng, *et al.* (2018) in their study found that physical inactivity seemed to be the most important lifestyle risk factors for basic/instrumental activities of daily living (ADL/IADL) disability.

Zarina, *et al.* (2003) reported differences irrespective of age, sex and area of residence (rural-urban) in ADL tasks. The respondents

who reported greater number of health problems were more likely to report difficulty with at least one ADL task.

Conclusion

The researchers found that there is a significant difference between older men and women with regard to performance of instrumental activities of daily living. Hence, it is important to implement effective community based health promotion programmes, multicomponent interventions for physical activity promotion and policy level prevention of functional disability.

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Gender Disparities among Old Age In India

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ABSTRACT

Gender disparity has been prevalent in India for many centuries. It is deep rooted in many communities or sections in India. India was ranked 113 on the Gender Gap Index (G G I) among 135 polling countries (Global Gender Gap Report, 2011). In many Indian communities, women are still considered as second-class citizens. For many centuries, they have been lagging behind men and dependent on them socially, economically, physically and psychologically. In Indian society due to the ignorance and limited social interaction majority of women, particularly elderly women are mostly unaware about their rights and powers thus are dependent on their male counter parts of the family for their daily and day-today requirements. Older women are in more problematic situation than older men due to their limited social interactions and lack of resources. The present article mainly illustrates about gender disparities among old age people in India and its special focus on the area of ageing, health and societal responses of women elderly through gender perspectives.

Key words: Ageing, Gender, Health, Socio-Economic Conditions.

Ageing of populations has increasingly become an important issue and concern globally. These concerns grounded in emerging skewed economic futures, social imbalances, and individual risks. Globally the population of elderly (60-plus) contributes about 11.5 per

cent of the total population. The data from 2011 population census government of India revealed that there are 103.8 million elderly in the country constituting 8.6 per cent of the total population (Census of India, 2011). The United Nation Population Division has projected that elderly population in India will reach 11 per cent by 2025 (United Nations Population Division, 2013). This growth of elderly population in India is mainly due to the longevity of life achieved because of economic well-being, better medicines and medical facilities and reduction in fertility rates.

Elderly Population (aged 60 years and above) in India

(In millions)

Source	Total			Rural	Urban
	Person	Female	Male		
Census 1961	24.7	12.4	12.4	21.0	3.7
Census 1971	32.7	15.8	16.9	27.3	5.4
Census 1981	43.2	21.1	22.0	34.7	8.5
Census 1991	56.7	27.3	29.4	44.3	12.4
Census 2001	76.6	38.9	37.8	57.4	19.2
Census 2011	103.8	52.8	51.1	73.3	30.6

Source: Population Census Data

The above table clearly illustrates that, out of 103.8 million elderly persons in India; 52.8 million are females and 51.1 million are males. It is interesting to note that up to Population Census 1991, the number of elderly males exceeded the number of females. In the last two decades, however, the trend has been reversed or changed and the elderly females outnumbered the elderly males. This is also a major concern for policy makers as elderly women are more vulnerable on all fronts compared to elderly men. As regards rural and urban areas, more than 73.3 million persons, i.e. 71 per cent of elderly population reside in rural areas while 30.6 million or 29 per cent of elderly population are in urban areas.

Gender and Ageing

Gender refers to the varied and complex arrangements between men and women, encompassing the organization of reproduction, the

sexual divisions of labour and cultural definitions of femininity and masculinity. It therefore is, at the same time, a set of social arrangements determining how women and men live, and a way of thinking that divides people up into two social categories. These arrangements and social categories constituted the bipolar world.

Gendering can be seen to operate at three levels (micro, mezzo and macro) in the society. The first involves the patterns of individual behaviour and interaction at micro level. The second is the institutional level, which is extremely important. Joan Acker, who has made important contribution to the study of gendering in organizations, offers a useful definition: "to say that an organization, or any other analytic unit, is gendered means that advantage and disadvantage, exploitation and control, action and emotion, meaning and identity are patterned through and in terms of a distinction between male and female, masculine and feminine" (Acker 1990). Finally, these institutional processes feed into the development of gendered structures at macro or societal level. The choices people make and the rules governing social interactions and social institutions come together and coagulate into gendered structures such as the sexual division of labour, which are remarkably robust and operate across a whole society.

Mainstreaming ageing and mainstreaming gender are interlinked. Gender inequalities in older age result from accumulated gendered disadvantages during the life course. The need to adopt a life course approach when dealing with the interconnections of ageing and gender arises from the understanding that present circumstances of older people can be understood by references to their prior life course. This requires the linking of socioeconomic position, roles and relationships in later life to the earlier biographies of men and women. In many countries, gender mainstreaming is an established concept; others are embarking on national strategies to eradicate gender inequality in all generations.

Ageing women make up a significant proportion of the world's population and their numbers are growing. The number of women age 60 and over will increase from about 336 million in 2000 to just over 1 billion in 2050. Women outnumber men in older age groups and this imbalance increases with age. Worldwide, there are some 123 women for every 100 men aged 60 and over. The fastest growing group among

ageing women is the oldest-old (age 80-plus). Worldwide, by age 80 and over, there are 189 women for every 100 men. By age 100 and over, the gap reaches 385 women for every 100 men (World Health Report, 2006).

Changing gender roles and relationships in later life and the challenges to masculinity with advancing age are newly emerging areas in the study of gender and ageing. The perception of older women and men has not been the same in the discourse on ageing populations. The social construction of ageing is distinctly gendered in that men and women have been found to experience life differently in their older age in part because of their gender.

First, women have an obvious “demographic advantage” in that they live longer than men. This phenomenon which continues across the life course into old age has led to the coining of the phrase ‘feminization of ageing’ which suggests that there are greater proportions of older women than men (Kinsella 2009; Gist and Velkoff 1997).

Second, men and women tend to experience ageing differently in the area of caring. In this regard, older women become caregivers to their husbands while the reverse occurs less often. This is to be expected for two key reasons. First, women tend to marry men who are older than themselves and as their husbands grow older, women invariably take on the role of elder caregivers. Second, this trend of women being primary caregivers of their husbands in old age shows up because of cultural norms. In fact, cultural norms demand women to be the primary caregivers throughout their life course, while men are ascribed the role of breadwinners in the family.

Third, larger proportions of older women are more likely to be “dependent on others” whether it be spouses, families or the state – more than older men since they would not have worked or would have had interrupted careers as a result of having to provide care towards their families. In this case, being dependent on others has been interpreted as a disadvantage and, in turn, construed as vulnerability since it signals the lack of savings and the inability to be self-sufficient.

Fourth, because there are many more married women who outlive their husbands and survive into old age, the numbers of older women who are more likely to be widowed supersedes that of men (Gist and Velkoff, 1997).

Ageing is a lifelong process, which begins before we are born and continues throughout the life. The functional capacity of our biological systems increases during the first years of life and it reaches its peak in early adulthood and naturally declines thereafter. For women specifically, ageing has added problems of institutionalized gender hierarchies deeply ingrained across cultures. World wide it is also being observed that older women are the single most vulnerable group to poverty which further complicates the ageing process for women (Ahmed and Ghosh, 2009).

Elderly women outnumber elderly men in all countries. They are more likely to live in poverty and to be affected by disability and restrictions of mobility. They are more represented among those living in residential care and are at bigger risk of elderly abuse. Many elderly women are widows and at an economic disadvantage due to low incomes. To tailor adequate social policies to respond to an increasingly ageing society, it is important to take into account these gender differences.

Financial and social security of women and men in old age is connected to their current and previous participation in the labour market. Gender differences in socio-economic status are partially rooted in the traditional gender division of labour, where men bear the primary responsibility for breadwinning – that is, for paid work – and women for unpaid housework and family care. It is clear that from the above selected characteristics differentiating men and women that the experience of ageing is varied across the sexes. In other words, the disadvantages older women face are linked to structural and socio-cultural factors which had marginalized them earlier on in life and which then become further pronounced in old age.

Disparities in old age in income and wealth, access to financial services and employment often reflect accumulated disadvantage due to one's location, gender, socio-economic status and other characteristics, ageist attitudes and practices, and lacking or inadequate laws and policies or their enforcement that provide for equality and minimum standards of living.

Inequalities in later life can be the product of cumulative advantage or disadvantage over time. People born at a similar point in time may have very different outcomes in later life due to experiences over the life course. For example, poor education and work opportunities, along

with weak social connections may have long-term consequences for people's income, health and well being in later life.

Health Disparities in Old Age

There is a substantial body of evidence on disparities in physical and mental health in later life that relates to general health, specific conditions and particular 'at risk' groups. However, there are still huge gaps in the evidence, including relatively few studies that focus on health disparities or inequalities among old age. People who are poorer in later life have worse health, across a wide range of physical and mental health conditions.

Despite their increased health risks, a large number of older persons across countries lack access to adequate levels and quality of health care. Older persons often work in low-paying jobs, live off on family support or assets, or receive limited income from pensions. Where health care is not provided universally and at no or very low cost, many older persons avoid preventive care and even treatment or pay medical fees at the expense of other basic needs. Age discrimination and age-related stigma additionally function as a barrier to health care, both deterring older persons from accessing health services and resulting in reduced quality of care.

Women face poorer health status and higher rates of chronic illness in old age than men. Older women experience more nonfatal chronic conditions and higher prevalence of functional limitations, disabilities, than men, and this gender gap is exacerbated as they age (Freixas, Luque, and Reina, 2012). In terms of source of payment of medical bills older men are more independent as 44 per cent of them pay themselves while less than 20 per cent of older women are able to pay bills by themselves. More than half of older women depend on their children to pay their medical bills (Giridhar, Subaiya and Verma, 2016).

In short, older women, who are more likely to be of lower income than older men, largely are cared for by young children or spouse who are typically of low income and low status. It also creates some trouble to the health care needs of the elderly women in India.

Gender and Socioeconomic Conditions of Elderly

The elderly persons in India are facing various types of health and social challenges regarding, illiteracy, economic and social difficulties,

problems with daily living life and dissatisfaction and lack of medical and emotional support and care. It might negatively affect their quality of life. In Indian society, religious values, cultural and traditional practices are supposed to be followed by younger members who are expected to look after the elderly members of the family and treat them with honour and respect. With familial and structural changes and other socioeconomic conditions, elderly in India are facing drastic changes in their future life.

Old Age Dependency Ratio by Sex and Residence, India, 1961–2011

<i>Year</i>	<i>All</i>	<i>Male</i>	<i>Female</i>	<i>Rural</i>	<i>Urban</i>
1961	10.9	10.9	10.9	11.4	8.7
1971	11.5	11.4	11.6	12.2	8.9
1981*	12	11.8	12.2	13	9.2
1991**	12.2	12.2	12.2	13.2	9.7
2001+	13.1	12.5	13.8	14.1	10.8
2011	14.2	13.6	14.9	15.1	12.4

Source: Office of the Registrar General, India

* Excludes figures for Assam in 1981 where the census was not conducted.

** Excludes Jammu & Kashmir where the census 1991 was not conducted.

+ Excludes 3 Sub-divisions of Senapati district of Manipur

The above table is clearly showing that the dependency ratio of female elderly is higher than male elderly in India over all the periods and place of residence.

*Per cent of elderly population working as in Population
Census 2001 and 2011*

<i>place of residence</i>	<i>sex</i>	<i>Main worker</i>		<i>Marginal worker</i>		<i>Main workers + Marginal workers</i>		<i>Non worker</i>	
		<i>2001</i>	<i>2011</i>	<i>2001</i>	<i>2011</i>	<i>2001</i>	<i>2011</i>	<i>2001</i>	<i>2011</i>
Rural	Male	56.8	53.0	8.8	13.5	65.6	66.4	34.4	33.6
	Female	13.7	16.3	11.2	12.1	24.9	28.4	75.1	71.6
Urban	Male	40.7	41.0	3.4	5.1	44.1	46.1	55.9	53.9
	Female	6.8	8.3	2.1	3.0	9.0	11.3	91.0	88.7

Source: Office of the Registrar General, India.

Literacy levels among elderly males and females have improved over time in both rural and urban areas. These literacy gap and other socio-economic and health factors among females are limiting or reducing their elderly working population to compare with their male counter parts. The female elderly working participation is very low in all decades of the census in main, marginal and non-worker.

Per cent of Literates among Elderly Persons Over Years

<i>Place of Residence</i>	<i>Sex</i>	<i>Census 1991</i>	<i>Census 2001</i>	<i>Census 2011</i>
Rural	Males	34	45	51
	Females	8	13	18
	Persons	21	29	34
Urban	Males	66	75	80
	Females	31	42	53
	Persons	49	58	66
rural + urban	Males	41	53	59
	Females	13	20	28
	Persons	27	36	44

Source: Office of the Registrar General, India

Literacy levels among elderly males and females have improved over time in both rural and urban areas. However, there is a huge gap between male and female literacy rates. It is evident that there is a huge gap between literacy rates among elderly male and female in rural and urban parts of the country over the period of different census.

Disability and Ageing

Among the elderly persons it was observed that despite illness more men seemed to be feeling that they had a better health condition as compared to the women. In urban areas, more elderly men and women felt to have good/fair health as compared to their counterpart in the rural areas. As per Census 2011, in India, out of the 121 Cr population, about 2.68 Cr persons are 'disabled' which is 2.21 per cent of the total population. Among the disabled population 56 per cent (1.5 Cr) are males and 44 per cent (1.18 Cr) are females. In the total population, the male and female populations are 51 per cent and 49 per cent respectively in composition of general population.

If we look at the elderly (60+ years) disabled constituted 21 per cent of the total disabled at all India level. Among the disabled males constitutes 18 per cent are elderly (above 60 years of age) whereas 23 per cent of female disabled are elderly in India. Among these disabled persons, the disabilities in movement (25%), in seeing (25%) and hearing (12%) are prominent. 12 per cent has multiple disabilities. (Disabled Persons in India, GOI, 2016).

Conclusion

In short, gender disparities among elderly are very common phenomena and a global issue. It exists at all ages but when women become old, the consequences of engendered roles become more explicit. Poverty is inherently gendered in old age when older women are more likely to be widowed, living alone, with no income and with fewer assets of their own and fully dependent on family for support. Income insecurity is a significant source of vulnerability among older women. More than four out of five women have either no personal income at all or very little income; income insecurity increases with advancing age (India Ageing Report, 2017). Economic dependency among older women is therefore high. One third of older women do not own any assets. Ageing of women is accompanied by low work participation, low earnings and high economic needs. Low level of awareness and utilization of their welfare schemes and programmes and low-level social connections and networks, other socioeconomic backwardness are the major causes, to deal with these gender disparities. India should formulate gender mainstreaming and gender focused ageing policies and programmes in coming future.

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Examining Effectiveness of Social Security System in India with Regard to Older Population

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ABSTRACT

The present paper appraises the social security system in India with the aim to see its effectiveness in reducing vulnerabilities and destitution among older people. With the advent of factors of social change like modernization, migration, change in family system and now globalization, have reduced the traditional informal systems of social security. Levels of awareness about various social security measures and issues related to accessing and availing them form part of the discussion in the paper. The paper highlights certain case studies to depict the deplorable conditions of older people in poverty who have not been able to avail benefits of government services. Using secondary data, gaps in existing social security system are put forth. Lastly, suggestive interventions have been presented so as to ensure rightful share of senior citizens on social resources and protection of their well-being.

Key words: Population ageing, Social security, Living arrangement, Vulnerability, Health condition

Population ageing is considered as one of the humanity's greatest triumphs. Gro Harlem Brundtland, Director-General, World Health Organization has said that population ageing is the first and the

foremost a success story for public health policies as well as social and economic development. Increasing proportions of the elderly in the general population is a matter of pride and an indication of success of public health system and advancement of medical technologies that has resulted in decline in death rate and increase in life expectancy. Worldwide, the proportion of people aged 60 years and above is growing faster than any other age groups. The elderly constitute about 10 per cent of the total population of India and is the fastest growing population segment. By 2050, with nearly 324 million elderly, almost every household in the country would be confronted with challenges of elder-care. This demographic situation is posing challenges to social-planners and policy-makers to meet the social security needs of the elderly. As India's population ages, concerns about the economic security of the aged people automatically have come to the forefront. Several studies show huge gap between required and existing social security services for the elderly. Traditionally, older people in India have enjoyed utmost respect and care. Joint family system along with strong community ties has ensured their security and well-being.

However, forces of social change like industrialization, urbanization and now globalization have put the elderly at the cross-roads. Joint family system has given way to nuclear families, patterns of occupation and livelihood changed, adding to vulnerabilities of the aged.

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

- Advancing age itself can become a factor in enhancing vulnerability if it is accompanied by associated factors that force a person to change his/her preferred life-style and autonomy.
- Inadequate food intake due to poverty, lack of resources, abuse by caregiver(s), requirement of special diet and non-availability of same, lack of knowledge about the balanced diet, make an elderly person vulnerable to many deficiency disorders. In old age, deterioration in body strength is accelerated due to nutritional deficiencies. This factor of nutritional vulnerability leads to poor health condition, which, in turn, may hamper the aged person's well-being in several ways.

- Poor health condition, ailments like high/low blood pressure, diabetes, digestive upsets, breathing problems, and decreasing sensory capabilities, say, vision, hearing, often make the aged persons vulnerable as these factors limit their autonomy in activities of daily living.
- Accessibility and affordability to healthcare services often influence health vulnerability of the aged.
- In the case of women, other than general old age related health problems, gynecological ailments and susceptibility to osteoporosis after menopause add to the vulnerability especially for those who had repeated and multiple pregnancies in their prime time accompanied with poor nutritional intake.
- Widowhood in a patriarchal social structure does aggravate a woman's vulnerability as her identity, more or less, is governed by her husband. Societal perception becomes harsh towards her when she is without the 'support' of her husband.
- Superannuation from work life adds to economic vulnerability, more so in the case of those not getting any pension and other retirement benefits.
- Savings and possession of assets may serve as security in old age. However, women, more often than not, are denied property rights. Also, lack of knowledge of intelligent appropriation of economic resources or due expenses on carrier and marriage of child(ren) add to economic vulnerability.
- Patriarchal social structure has discouraged a woman to actively participate in community events and join formal social groups. As a result, majority of women have remained dependent on their family members for support and even lack information about these resources.
- All factors that contribute to mental health problems like worry and tension, depression; loneliness, etc. tend to enhance vulnerability of aged persons.
- Elderly abuse, be it physical, social, emotional, verbal, mental, at the familial and/or community level, increases vulnerability.

Old age invariably brings deterioration in body's strength and health. Inadequate healthcare system aggravates the health vulnerability among the aged. Statistics show that, out of nearly eight per cent of elderly population to the general population in the country, one-third is below poverty line and another one-third just above it (see NSSO, 1997). So, about two-thirds of the aged citizens are vulnerable and in need of social safety net. So, nearly 66 per cent of the aged need social assistance. Lacunae in health security system add to the miseries of the aged. Countries like India encounter resource crunch in meeting the social security needs of their elderly. Socially, increased role-less-ness and dependence in old age lead to abuse, loneliness, alienation, among the elderly. Consequently, a society faces severe implications where its older people are considered unproductive and spent-force.

Population ageing may be seen in the context of existing socio-economic realities in India. For long informal support system in terms of strong family and community ties is withering away and there is greater pressure on the government to make formal systems of social security more efficient. It may be noted that increasing number of elderly in the population means increased dependency ratio and greater burden on tax payers to meet the demands of social security of older people. Elderly in India are potentially facing major economic insecurity. Economic policies in India have repercussions on health security of the general population and more specifically for the elderly who need more medical care than their younger age population groups.

With more than 90 per cent of Indian workforce in the informal sector, several studies affirm that social security and social protection programmes initiated by the government most often do not reach to the needy ones. This is particularly true with regard to numerous aged people forced to work in unorganized sector in order to make both ends meet. In this regard, women face added disadvantages in ensuring their economic security. Migration of younger family members from rural areas leaving the elderly to fend for themselves adds to their woes. Living in multi-generational family units has been frequently reduced due to migration of young people to cities, towns and abroad

in search of better employment options. This results in decreased abilities of younger people to care for their ageing parents.

Moreover, increased longevity, greater needs of medical care for health security of the elderly while reduced chances of their affordability of medical services poses further challenges. Personal savings often are not sufficient to meet medical expenses. It is claimed that three per cent of Indian population is pushed below poverty line every year in trying to meet medical expenses. These factors increase the risk of non-poor elderly to fall into poverty.

Let us first discuss income protection and related nature of economic insecurity among the elderly in the context of existing social security measures in India. Personal factors like health needs and economic condition are crucial factors in determining social security needs among the elderly people. Earnings during working years and savings are also important variables, provided earnings are sufficient enough to allow savings. There are certain precarious issues associated with it: first, there is unpredictability about the length of life post retirement. So, actual exhaustion of savings to meet health needs may take over expected consumption. Second, there is likelihood of individuals being unemployed or under-employed due to fluctuations in job market. Third, there is increased susceptibility of morbidity and disability among older adults due to life-style diseases and stressful life lived in the youth-hood. Further, unexpected contingencies of life such as accident, disability and death of earning or non-earning family member puts additional burden on family's economic resources. This may involve not only lower savings when health expenses are paid for out-of-pocket, but additional consequences such as children being pulled out of school, caregivers taking time away from work, or lower nutritional intake, resulting in an adverse impact on their long-term economic circumstances. This seriously undermines the long term economic prospects for the individuals and families. Elderly in such situations suffer from additional disadvantage as whenever there is scarcity of economic resources, needs of children and young adults is prioritized over the needs of the aged family members.

Bloom, Mohal, Rosenberg and Sevilla (2010) maintain that with those aged 60 years or older representing nearly 8 per cent of the total population, which is expected to increase sharply in future years, a significant portion of the Indian population will require income support for an average of 20 years per person. However, this is not true for two-thirds of the elderly who remain economically impoverished. More than 90 per cent of the working force remains out of the pail of retirement benefits such as pension because of being in informal sector. Sastry (2007) projects that a huge number of people have earnings that are just above the poverty line, with little room for saving for retirement. Moreover, as discussed some people in unorganized sector are unable to work due to failing health condition and/or disability and, thus, end up living in poverty. Basu and Srivastava (2005) note that despite substantial improvements in access to formal institutions like banks nearly 60 per cent of rural households do not have bank accounts and even greater proportion of population have limited accessibility to credits from banks. These data need to be viewed in the context of the fact that for most of the schemes and services such as Mahatma Gandhi National Rural Employment Guarantee Act or National Old Age Pension, amount is directly sent to beneficiary's bank account.

Pal (2004) observes that three-fourth of the elderly population in India live with their children and most among them are dependent on their children for financial support. However, with demographic and socio-economic changes economic dependence of elderly on family would not remain a dependable source. Decline in fertility rate is forecasted resulting in increase in elderly dependency ratio that implies working age adults would find it difficult to provide economic support to the elderly (Ministry of Health and Family Welfare, 2009). Along with these changes increasing trend in migration of young adults in search of better economic opportunities, usually from rural to urban areas, often leave left behind elderly uncared for. Data show that proportion of elderly living in rural areas is far greater than those living in urban areas (Visaria, 1999; Deshingkar and Akter, 2009). Though many migrated children send remittance to their old parents, but with gradually weakening of these family based informal support

ties there is a risk of elderly being rendered without care and protection in near future.

To, conclude, though strong family ties remained a source of social safety net and traditionally children, particularly sons, were social security for the elderly, in future this reliance exclusively on family system and such other informal support system would not be feasible for the aged.

Market, though pretends, may not have intentions to actually provide social security and protection to the needy and destitute elderly. The General Insurance Corporation and the Life Insurance Corporation have invariably catered to those who have economic power to contribute for their insurance while the poor and needy elderly were left behind. Talking about income risks, there is no formal unemployment insurance in India, though certain insurance mechanisms are provided, including for those in agricultural sector. But such facilities like crop insurance can be availed by comparatively well-off farmers while the poor landless marginal farmers and agricultural workers face the wrath of poverty (see: Venkatesh, 2008). These insurance facilities offer negligible benefits to low-skilled agricultural workers and marginal farmers who are often in impoverished conditions (Sastry, 2007). Let us see the effectiveness of social security system offered by the government for older persons.

Bloom, Mohal, Rosenberg and Sevilla (2010), based on National Sample Survey data from the 60th round, have calculated that annual per capita out-of-pocket health spending in India was almost four times as high among the elderly (INR 2,890) as among members of working-age groups (INR 770). Since the discussion is revolving around the elderly, again and again medical expenditure incurred by/on elderly forms an important case point. Since Government of India does not offer highly subsidized or free of cost healthcare security system for its senior citizens, financial implications of ill health among them pose serious risk to the economic well being of the aged population including their families (Krishna, 2007; Government of India, 2009). Households with the elderly are, however, particularly at risk, both because of their greater likelihood of becoming ill and

their need of more intensive care. Krishna (2007) brings out that financial risks from ill health have increased over the last two decades, particularly for poorer households.

Bloom, Mohal, Rosenberg and Sevilla (2010) have analysed that out of pocket expenses for hospitalization among elderly, especially among the poorer groups have sharply increased between 1996 and 2004. This increase in out-of-pocket health spending is also due to poor quality government healthcare services and reduced spending proportional to GDP on public health services along with limited access to health insurance and assistance options (Yip and Mahal, 2008). Private health services are too expensive and beyond reach for most economically impoverished families. In addition, premature death and/or days missed at work of the earning family members put further economic burden on the families.

Let us look at the gender angle. Feminization of ageing is a reality across the globe. In India too, women tend to live longer than men. But this long life is not a pleasant one as aged females have high morbidity rates and due to gender discrimination, they largely have remained out of the benefits of education and skill development. In addition, Sastry (2007) notes that women in India have lower labour force participation rates and tend to work for fewer years than men and working women are more frequently employed in informal sector and hence are not covered under income protection and retirement benefits. Thus, women have lesser opportunities of old-age income security than their male counterparts. This should be seen along with the fact that women are at major disadvantage in terms of ownership of movable and immovable property including inheritance rights (at the cultural level, not legal). This apart, aged women in India have less access to other forms of economic support from their families than older men. Pal (2004) has noted that in contrast to widowers elderly widows lived alone more frequently. With little access to assets and earnings, aged ladies, particularly widows, face dire economic impoverishment in India (Drèze and Srinivasan, 1997).

And, in order to reduce the vulnerability of the aged population, the State and civil society organizations have initiated many services

and programmes like geriatric wards and clinics, mobile vans, health camps, day care centres, old age homes and so on. However, under its social assistance programme, two schemes by government of India need special mention – Old Age Pension (OAP) and Annapurna scheme meant for the destitute and needy elderly. However, availing these benefits is subjected to fulfillment of stringent conditions of age verification, domicile and proof of destitution.

Various schemes for elderly by the government may be looked into. The old age pension or widow pension is very important measure for poor elderly citizen which assures 500 INR per month fixed. There is variation in terms of disbursement of old age pension. Individual states have their own pension schemes which they may merge with central old age pension scheme. Moreover, it involves various complexities in application and selection of beneficiaries because overall process is highly politicized and is full of red-tapism. There are irregularities at the implementation level. It may also be noted that the elderly who fortunately are registered under this scheme do not get this monetary support regularly. Either it might be reimbursed on annual basis or more than that. Reimbursement is always full of delays and abrupt discontinuations (Adhikari, 2018). Harassment is more when the beneficiaries submit their living certificate issued by local gram Panchayat members (representatives of the lower house of three tier local self government) every year. It is not easy to get this certificate because they have to move day after day to their representative's home or office. Other direct schemes or measures for these populations are many times only a declaration because one could hardly find in practice or field application of such schemes.

Many gerontologists have questioned the efficacy of the said appraisal system as criteria for disbursement of materials and services under social assistance programmes. Added to this, researches have shown poor impact and reach of these services in reducing the vulnerability levels of destitute and needy elderly (Khan, Yusuf and Kaushik, 2013).

There is a need for a holistic approach to deal with old-age social security. Holzmann and Hinz (2005) have mentioned about the World

Bank's multi-pillar framework for pension systems and reforms. They discuss about five pillars as follows:

- (a) an unfunded social pension for the poor elderly as part of social assistance programme;
- (b) a mandated contribution-based defined benefits linked to earnings;
- (c) a mandated defined contribution plan for individuals;
- (d) a voluntary contribution-based plan that could be employer sponsored, individual accounts, or defined contribution; and
- (e) informal support systems.

The social pension pillar serves as a mechanism to protect against old-age poverty among the chronically poor and marginally non-poor individuals in the informal sector who may be vulnerable to old-age income insecurity. There are certain programmes intended specifically for enhancing elderly income and support. One such quite popular scheme launched by the central government is the National Old Age Pension Scheme in 1995 (renamed recently as the Indira Gandhi Old Age Pension Scheme) as a part of its national social assistance programme. It provides a pension of INR 200 per month for the aged above the age of 65 years who belong to poor households. This scheme is currently covering nearly 16 million elderly (Rajan, 2007). In this scheme there are challenges associated with difficulty of determining the age of a person, particularly in rural areas.

Kohli, *et al.*, (2017) have conducted research with 223 elderly living below poverty line and found that 179 (80.3%) were aware of Indira Gandhi National Old-age Pension Scheme (IGNOAPS) while only 112 (50.2%) of them were utilizing the scheme. Annapurna scheme was known to 140 (62.8%) elderly but only 23 (10.3%) were utilizing the same. In that study, almost 80 per cent were economically dependent on their family.

Conclusions and Suggestions

Old age invariably comes with a set of vulnerabilities. It is the right of the elderly to be cared for and protected against abuse, destitution, neglect and destitution. Government has constitutional

obligation to protect the well being of the elderly citizens. Though income security is paramount, health security is equally significant as most economically impoverished elderly fall below poverty line due to health expenses. It should be ensured the social pension schemes are expanded in coverage and reach and their implementation be prompt and with easy accessibility and availability. This is very crucial for maintaining the spirit of the social pension schemes. There is a big gap between awareness and utilisation of pension schemes by the BPL elderly. More serious is the leakage of these benefits to non-BPL elderly. Most studies have highlighted the ground realities like corruption, delays, bribery, etc. Added to this, multiplicity of social pension schemes, various implementing agencies and lack of coordination among them, complicated application processes and impractical prerequisite criteria and demands for documentation multiply the woes of the poor elderly. There is a need of complete overhauling of the entire system of social pension disbursement.

Further, equal importance needs to be given to health security along with income security as accelerating medical expenses push many elderly below poverty line. A serious look into the accessibility, availability and affordability of health services by the poor aged is required. Training of healthcare staff in geriatric medicine is needed.

All these services and systems need to be rectified and created without lapse of time, keeping in mind that in the near future with increased proportion of the elderly, these demands of services would increase many folds.

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