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

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

We strive to ensure social justice and welfare for people over 60, focusing on those elders who are the most disadvantaged such as elderly women. We protect the civil liberties of elderly citizens as a part of the struggle for individual rights and social progress in India. Currently, the elderly community comprises approximately 10 per cent of the total population of India. This number will increase to nearly 25 per cent within the next twenty years. Neglected and abandoned by society and sometimes by their own families, elders are increasingly subject to conditions of disease and poverty. They lack access to health care, and often face serious discrimination as well as physical and emotional abuse.

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- Use of various forms of media to Raise Public Awareness on Elder Rights
- Counselling and Helping elderly to Relieve Psychological Stress and Depression
- Elder Women's Cooperatives that Provide Grants and Assistance to Elderly Women
- Public Awareness Raising to Promote Public Action for Helping Disadvantaged Elderly
- Field Study of Rural Areas to Analyze Challenges Faced by Ageing Rural Population

Our Plan of Action Includes

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

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Cognitive-communicative Decline with Ageing: Do Speech-Language Pathologists Contribute to Clinical Decisions?

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ABSTRACT

The paper discusses a few areas of cognitive-communicative decline generally seen in the elderly population. In addition, a few guidelines are suggested to speech-language pathologists to design and devise clinical protocols for quick assessment of elderly population with the purpose of strengthening the clinical practice.

Key words: Ageing; Communication in the elderly; Cognitive-communicative decline; Speech-language pathology; Clinical assessment

Ageing is a fundamental biological multidimensional process of physical, psychological, and social change that can be defined, measured, described and manipulated (Hultsch & Deutsch, 1981). Ageing is the process of becoming older, a process that is genetically determined and environmentally modulated. Normal ageing often refers to the most common or usually encountered functional state of the nervous system in a population of older individuals. In addition to the physical changes, normal ageing is also accompanied by changes in the ability to process, understand and use language. Ageing can be

divided into *Biological ageing (*Handler, 1960) *Psychological Ageing (*Birren and Renner, 1980), and *Cognitive Ageing* (Bayles & Kaszniak, 1987; Cohen & Faulkener, 1989).

Although majority of researchers are of the opinion that genetic characteristics determine ageing, the environmental influence on ageing leading to physiological decline cannot be undermined. However, either due to genetic or the environmental factors, considerable differences are observed among the aged individuals with respect to the rate and extent of decline. In the recent years increasing attention has been focused on the identification of environmental factors that may interact with underlying genetic propensities to alter the rate and extent of human ageing. The World Health Organization (WHO) estimates that by the year 2020, 75 per cent of the 114 million population is likely to have dementia worldwide. Among them, 14.2 per cent of the 70 per cent of the world's population aged 60 years and above will be located in the Indian subcontinent and in less developed countries by the year 2050. However, the above figures should be viewed with a clear understanding of the differences in the terms Senescence[1] vs. Senility[2]. Although, there is no global decline in linguistic functions, decline in certain cognitive functions like attention, memory, recall and reaction time with increasing age has been reported in condition of senescence.

Cognition encompasses all processes by which an individual transforms, condenses, elaborates, stores, retrieves, and exploits sensory information. Such an ability allows one to cope with and process incoming information so that s(h)e can understand and interact with his/her environment (Neisser, 1967). It is also widely accepted that cognition involves a wide range of mental processes that are interrelated with one another while communication is mainly an active and intentional two-way process of exchange of thought and messages between speaker and listener. Language that serves as an important mode of communication employs an arbitrary set of symbols (code) arranged in a prescribed manner to convey meaning. In order to express thoughts and messages either through speech or through any other alternate mode (s) using arbitrary code, it is mandatory to retrieve linguistic units, organize as per the set of rules acceptable by the group/society, verify, produce, judge for errors (if

any), incorporate corrections, watch/wait for listener's reactions/responses. The entire process of communication is monitored and executed by the system of cognitive processing. Language, which is considered as a part of cognition shares an intimate relationship with all other cognitive functions that are multidimensional comprising of subcomponents. In order to execute such a complex process, the cognitive system is sub-served by many components among which attention, memory, organization, reasoning and judgment skills are weighted as the salient components contributing for communication. Besides all these, one cannot undermine the significance of extralinguistic and paralinguistic aspects of communication since changes/deficits in these aspects are the first and foremost indicators of cognitive-communicative decline with ageing.

Cognitive-communicative decline is strongly linked to neuroanatomical and neurpophysiological changes that take place due to ageing process. Despite the debate that exists about equipotential nature of two cerebral hemispheres for basic language capacities in the first two years of life (Lenneberg's, 1967), the anatomical asymmetries reported by Geschwind and Levitsky (1969)[3] was attributed to quicker early RH development but greater LH development after the first year of life while acquisition of language sets-in. Consequently, the age related changes seen in human brain structure are described as either developmental (with tripling of brain weight, growth of neuronal processes, increased synaptic connections, followed by progress in myelination) or involutional (changes described predominantly in old age), with either of them contributing to cognitive-communicative decline. This suggests that assessment of persons who are ageing due to senescence or those manifesting senility should be carried out with caution with due consideration to the neurological status of the individual in question.

Cognitive ageing is defined as the cognitive changes that are observed in relation to ageing. Cognitive functions such as attention, memory, and executive functioning that are multidimensional in nature impinge on linguistic abilities resulting in language processing and production deficits. Such deficits are generally attributed to reduced processing capacity consequent to cognitive changes. For example, difficulty in word retrieval (Kemper, 1992), decline in

discourse (Ulatowska, 1985), reduced language performance with reference to use of semantic information, structure, errors of reference, intact phonological and grammatical system within the clause but with decrease in type of clause structure and verb phrases used (Brownwell & Joanette, 1993), difficulty in high level comprehension task as drawing inferences, recalling story gist and detecting verbal anomalies (Cohen & Faulkner, 1989) which require higher level cognitive processes like reasoning and meta cognitive thinking that are all largely mediated by language (ASHA, 1987).

In view of research findings in ageing and cognitive decline that impinge directly on language processing, it is very essential to include linguistic skills in the assessment of cognitive-communicative decline for diagnostic decision-making process. Valid measures of linguistic skills should be evolved wherever not available &/or applied if available for decision-making in the assessment of cognitive-communicative behaviors. In order to plan for cognitive-linguistic assessment in the elderly, it is also necessary to understand changes in the specific cognitive functions with age.

Specific Cognitive Functions and Ageing

As mentioned in the earlier sections of this paper, there are many cognitive processes that relate to communicative functions. Among those, it is widely accepted that certain functions decline with ageing process as a consequence of which specific communicative functions are also impaired. For example, among the different types of *attention*, the elderly show little change in sustained attention that requires attention to only one task but greater difficulty in allocating attention to the target task when required to sustain attention simultaneously to two tasks that require both divided as well as sustained attention (Plude & Doussard-Roosevelt 1989). They found age related differences in divided attention task but Somberg and Salthouse (1982) had reported much earlier that divided attention per se, did not show age related differences. In view of the debated opinion, it may be stated that age group differences in the performance of complex dual tasks need not necessarily be due to attention phenomenon. Rather, it reflects an age related decrease in the capacity of resources for effortful processing.

It has been well established that memory deficits accompany the ageing process even in relatively healthy older adults. Further, tests used to assess language competence by speech language pathologists often make demands on memory processing. It is therefore, important to be aware of how memory deficits may influence the outcome of language competence while assessing the language of elderly clients. Age differences have been shown to be minimal in tests of primary memory (Craik, 1977). But, deficits are consistently observed on recall tasks that depend on long term memory. Yet, it is known that cues to aid in retrieval would automatically reduce the age differences thus posing the question as to whether it is the memory or the retrieval that gets impaired in the long term memory. In support of this premise, laboratory tests involving long term memory conducted with lists of words or text materials presented for recall suggest that young adults recall more items than older adults (Hultsch & Dixon, 1984) but the magnitude of the deficits can be reduced by providing cues for retrieval of the to-be-remembered items.

Standard tests of long term and short term recall and recognition involve episodic memory. Age related deficits in episodic memory tests that involve working memory, in which attention is required both to hold items in memory and to perform additional processing on those or other items is documented. Poon, *et al.,* (1978) reported that the older groups were not significantly slower and were not less accurate in retrieval of items from primary memory (earlier learnt material) but were significantly slower and less accurate in retrieval from secondary memory (later learnt material). Thus, neither the primary memory retrieval speed nor recall accuracy changes greatly with older age, provided that the assumed capacity of this hypothetic store is not exceeded.

With regard to working memory capacity and retrieval speed Botwinick and Storandt (1974) remark that it probably remains unaffected by normal aging but the ability to manipulate information in working memory may decline with age. Accordingly, many studies, particularly in the domain of language comprehension, allude to the possibility of working memory deficits in older adults as an explanation for language-related decline (Gick, *et al.*, 1988). While age differences are most evident in the encoding and retrieval processes

and least evident in storage, semantic memory has been studied with respect to vocabulary scores by Kramer & Jarvik (1979) who reported that there are no age related differences in the integrity of vocabulary scores. Organization of semantic memory also appears to be unaffected by age. This is seen in tests such as word and category association that are thought to reflect the connections that make up semantic memory (Bowles, *et al.*, 1983; Burke & Peters, 1986). Typically no age difference is reported in the ability to identify words and non-words on lexical decision task which is a semantic memory measure which requires access to words at the lexical level (Bowles & Poon, 1981, 1985; Howard, 1983).

Yet another cognitive function that shows decline with age is the executive function which require problem solving and cognitive flexibility. Cognitive flexibility is the ability to shift cognitive set, aptitude, thought, or attention in order to perceive, process or respond to situations in different ways (Eslinger and Grattan, 1993). The nature of cognitive flexibility is rarely defined beyond general statement about the ability to shift cognitive set. Eslinger and Grattan (1993) emphasized a collective cognitive processes contributing to flexible cognitive behavior, such as producing diverse idea, considering response alternatives, and modifying plans and behavior in order to manage changing circumstances and long term goals. The elderly people find difficulty to generate the concepts necessary to solve a problem or find strategies/to change to new strategies. This shifting occurs when either external task conditions or self initiated decision require that an alternative to the current response be chosen and executed. Such a characterization of cognitive flexibility connects it to real-life situations and highlights the potentially pervasive functional difficulties in persons with impaired flexibility. In circumstances where a person is required to change cognitive set for communication purpose, s(h)e should be flexible to choose the right vocabulary to the context, appropriate syntax &/or speech sounds (phonemes). A failure to be flexible with choice of linguistic code would lead to communication impairment. Hence, this is an important dimension that a speech language pathologist should consider during assessment of persons with impaired flexibility (Kumar & Prema, 2007).

Further, coupled with a general slowing of motor activities in the elderly, cognitive slowing which refers to the change in cognitive processing speed reflecting on the cognitive performance is reported (Myerson & Halle, 1993). Cognitive processing rate slows progressively throughout adult life span. However, bilinguals are reported to be better facilitated for cognitive skills (Rajasudhakar & Shyamala, 2008). They assessed age related changes and gender difference in monolinguals and bilinguals on various cognitive-linguistic tasks across different age groups. The results revealed that the bilinguals performed well on all tasks compared to monolinguals and that the younger subjects scored better than the older subjects on all the tasks.

Sensory Perceptual Changes with Ageing

1. *Hearing*: The peripheral sensitivity for hearing relates to cochlear changes that are associated with progressive loss of high frequency sensitivity above 1 kHz. Sophisticated computerized electroencephalographic techniques, auditory-evoked responses, particularly late positive potentials, show latency increases of almost two milliseconds per year. Additional changes, relating to word recognition and sentence identification, have been most intensively investigated, with the former believed to reflect "peripheral" changes and the latter reflecting "central" changes. Presbycusis has been stated to be an "inevitable consequence of aging" (Hayes & Jerger, 1984).
2. *Vision:* Precipitous declines in visual acuity are typically observed beyond age 50. This deterioration can be attributed to pupil size which diminishes with age, thereby reducing the amount of light reaching the retina. Birren (1965) and Weale (1998) have noted that there is generally little change in acuity from roughly age 15–50. However, the ability for accommodation (refers to the ability of the eye to focus on objects at different distances) as reported in several studies indicate that it decreases with advancing age. It is also reported that 60 year old receive only one-third of the light received by the 20 yr old retina.
3. *Taste:* Sensitivity for the major taste qualities is reported to decrease with age (Cooper, *et al.*, 1959). Ageing appears to have a differential impact on taste buds in certain areas of the tongue.

4. *Olfaction*: Birren (1965) reported a decrease in the number of olfactory nerve fibers with advancing age, implying a reduction in the sense of smell.
5. *Touch and pain:* Stereognosis (Axelrod, Thompson & Cohen, 1969), vibratory sensitivity (Cosh, 1953), and radiant heat pain sensitivity (Sherman and Robillard, 1960) decrease with advancing age.
6. *Perception:* The tachistoscopic experiments have established that older subjects require much greater exposure times to identify designs, words, and pictures which documents for the decrements in visual processing among the elderly. In an interesting study by Landahl and Birren (1959) subjects ranging in age from 18 to 85 were presented a standard weight of 100g in one hand and a variable weight (100–115g) in the other and asked to decide which was heavier. Discrimination performance was clearly inferior among elderly population. Botwinick, *et al.,* (1959) presented young and old subjects with ambiguous, reversible pictures. The study illustrated that younger subjects were much better able to reorganize an original percept and see the alternate figure.

Since sensory-perceptual ability contributes to cognitive communicative performance, speech language pathologists should be vigilant and sensitive to the sensory-perceptual dimension that decline with age while assessing cognitive linguistic decline in the elderly. In case there is a poor performance observed in the cognitive communicative dimension, caution should be exercised by the speech language pathologists to ensure intact/compensated sensory-perceptual ability before arriving making clinical decisions on the cognitive profile of elderly individuals.

Cognitive Linguistic Correlates of Ageing

Language is the system of arbitrary symbols that speakers use in a systematic order according to socially set conventional code to communicate ideas and feelings or to influence the behavior of others. Language is comprised of several linguistic and extralinguistic representation stores and operations. Collectively, these various processes function to support language comprehension, production or both in one or more language modalities. While the linguistic aspects of

communication include the production of words, phrases, and sentences according to the rules of grammar, the extralinguistic aspects are those nonverbal features that typically accompany the oral production of language and serve to modify, amplify or fine tune the actual meanings being expressed linguistically. There are also the paralinguistic aspects of communication that include melodic components of speech production that modify the meaning of the spoken message as it is produced although most often, it is considered as a component of extalinguistic aspects.

Comprehension

The general neurologic concomitants of aging such as slower timing or pacing, attentional deficits, difficulty in switching set, short-term memory deficits, and distractibility lead to comprehension deficits in the elderly apart from the sensory perceptual deficits such as hearing loss that accounts for some, though not all, changes in comprehension abilities. The changes in comprehension abilities in the elderly should be viewed cautiously since there are likely to be general slowness of neurologic response which is a major factor in comprehension impairment. For example, in a simple measure of response time to tones (Feldman & Reger, 1967), response time increased gradually from young adulthood to sixties and then decreased dramatically in the seventies thus offering support to the general neurological slowing. Age differences are also reported for processing spoken text that involved reduced ability to draw inferences based on presented facts, limitations in detecting anomalies in new information based on prior knowledge and reduced ability to extract the gist of the text. Age related decline was predominantly observed for syntactic processing abilities (Kemper, 1986) and comprehension of complex sentences (Feier & Gerstman, 1980).

Considering the significant decline reported in most of the cognitive-linguistic dimensions, one cannot exclude the possibility that specific neuroanatomic and neurophysiologic changes in brain substrate for language could maximally contribute to the deficits in comprehension seen in aging population. Both cortical and subcortical mechanisms relating to the perception and processing of speech may be implicated for the reported decline. It is well known that according

to the motor theory of speech perception, comprehension relies in part with subvocal processing of incoming speech. If this subvocal processing were slowed down or otherwise impaired, one might logically expect disturbances in comprehension.

Expression

As mentioned in the earlier sections, there is no effect of age on *vocabulary* score until the 6th decade with a small subsequent decline until age 90 (Fox, 1947). When subjects were asked to provide definitions for words or retrieve a specific word they perform more poorly than when they are presented with a multiple-choice format. The elderly subjects also exhibited poorer performance on the continuous word associations (Birren, *et al.*, 1962).

Lexical Retrieval Ability

The ability to retrieve words from the mental lexical dictionary was observed to be poor with subjects over 70 years of age by naming significantly fewer items than younger subjects. On confrontation naming tests Borod, *et al.,* (1980) and on Boston Naming Test, Kaplan, *et al.,* (1983) found that the older subjects more often require phonological cues to produce a correct response compared to normal young and elderly adults. The older subjects reported more tip-of-the-tongue experiences (Bruke, *et al.,* 1988) than did younger subjects which support the decline in retrieval ability when not supported with cues.

Syntactic Knowledge

Syntactic processing abilities decline to the degree they are associated with decreased memory and attentional demands. Elderly adults did not use grammatical forms and syntactic structures that impose high memory demands such as sentence initial relative clause and structures with multiple embedded clauses indicating age related decrements in the degree of syntactic complexity in the spontaneous speech. Across the age range of 60–90 a reduction in the variability and accuracy of syntactic structures, verb tenses and form classes are apparent. Albert (1985) and Kynette & Kemper (1986) studied the effect of syntax and ageing on comprehension. They analyzed the types of syntactic forms that were most difficult. The hierarchy from easiest to most difficult was as follows: Single negative, Active

comparative, Embedded, passive, double negative. Anagha & Basavaraj (2008) studied syntactic processing abilities of young adults with that of the elderly with respect to Kannada (L1), Telugu (L2), & Hindi (L3). They reported that the older group performed poorer compared to the younger population and that the syntactic performance of males was poorer than the females suggesting that the males are more prone to decline in syntactic abilities with ageing. Further, the decline in the language observed was in the order of L1 < L2 < L3, where L3 showed the maximum decline irrespective of the age and gender. The speech of individuals in their 70's and 80's is more likely to include omission of obligatory grammatical morphemes, articles and possessive markers further reflecting morpho-syntactic decline with ageing.

Discourse Production

Discourse may be measured on several dimensions. If one measures discourse by sentence length in spontaneous speech, the elderly perform no differently from younger adults. But, by measures of dysfluency, such as counting interjections, filler syllables, and incomplete phrases, it would appear that elderly subjects are more dysfluent than young adults (Yairi & Clifton, 1972). Obler (1980) noticed age effect for the incidence of paraphrases and the use of indefinite terms like, something, any, etc. with elders using them more in oral discourse measures through narration task. When quality of word usage was examined, it was found that the older groups produced results similar to those found to modify nouns and their verb-to-noun ratio was higher. The older groups used fewer themes in response to the instruction, "tell what is happening in this picture". If discourse is measured through written language, with writing samples, the elderly maybe slower at generating concepts than a younger or middle-aged group but compensate with well-structured, full, and complex syntax.

Clinical Implications – Gaps in Clinical Decisions

During the past century, treatments for the diseases of youth and middle age have helped raise life expectancy significantly. However, cognitive decline has emerged as one of the greatest health threats of old age, with nearly 50 per cent of adults over the age of 85 afflicted with Alzheimer's disease. Developing cognitive linguistic (

communicative)[4] assessment and intervention procedures for elderly population and those with pathological conditions such as Alzheimer's disease demands a greater understanding of the processes underlying normal and pathological brain ageing as well as normal and pathological decline in cognitive-linguistic (communicative) abilities. In order to meet the challenges posed by this special population, speech language pathologists need to understand the term 'Neurocognition'. Green (1998) conceptualizes neurocognition as a term that is used to describe cognitive functions closely linked to the function of particular areas, neural pathways, or cortical networks in the brain. Such a close link indeed always impinges on the cognitive-linguistic functions subserved by the specific areas (see Appendix I) that are highly interrelated with one another rather than existing in isolation. However, it is widely accepted that cognition involves a wide range of mental processes such as attention, pattern recognition, memory, organization of knowledge, language, reasoning, problem solving, classification, concept & categorization.

A speech language pathologist would agree with the statement that communication is an active and intentional two-way process of exchange between speaker and listener and that language forms an important mode of communication carried out with arbitrary set of symbols (code) arranged in a prescribed manner to convey meaning. This also involves retrieval of linguistic units, organizing and further processing most of which involve cognitive processing, viz., using a set code requires memory, organizing involves abstract reasoning, attention, orientation, etc. in order to produce the idea in the form of spoken or written language. To emphasize the interaction of language with cognitive processes, it may be said that language is not an isolated system but depends heavily on other cognitive processes while acquiring new knowledge, as when a person attends a lecture, reads a manual, or listens to instruction. American Speech Language Hearing Association (ASHA, 1987) substantiates this by stating that higher-level cognitive processing like reasoning and metacognitive thinking are largely mediated by language. Further, ASHA calls for the attention of speech language pathologists by denoting the following deficits suggesting that if considerable number in the list is present in a given individual there are likelihood of impairments in

language. Therefore, during assessment of cognitive linguistic (communicative) ability a speech language pathologist should also examine the following skills in the elderly population:

- Impaired attention, perception, or memory
- Inflexibility, impulsivity, or disorganized thinking or acting,
- Inefficient processing of information
- Difficulty processing abstract information,
- Difficulty in learning new information, rules, and procedures.
- Inefficient retrieval of old and stored information
- Ineffective problem solving and judgment
- Inappropriate or unconventional social behavior,
- Impaired executive functions, self awareness of strengths and weakness, goal setting, planning, self initiating, self monitoring, and self evaluation

ASHA in its Position Statement (ASLHA, 2005) also highlights the role of speech language pathologists (SLP's) in the identification, diagnosis, and treatment of individuals with cognitive communication disorders as follows:

1. SLPs play a primary role in the screening, assessment, diagnosis, and treatment of infants, children, adolescents, and adults with cognitive-communication disorders.
2. This position statement defines the roles of SLPs in the evaluation and management of individuals with communication disorders associated with cognitive impairments and clarifies the scope and rationale for these services.
3. Cognitive-communication disorders encompass difficulty with any aspect of communication that is affected by disruption of cognition.
4. Communication may be verbal or nonverbal and includes listening, speaking, gesturing, reading, writing and in all domains of language (phonologic, morphologic, syntactic, semantic, and pragmatic).

5. Cognition includes cognitive processes and systems (e.g. attention, perception, memory, organization, executive function).
6. Areas of function affected by cognitive impairments include behavioral self-regulation, social interaction, activities of daily living, learning and academic performance, and vocational performance.
7. Cognitive-communication disorders may be congenital or acquired. Congenital etiologies include but are not limited to genetic disorders and pre-, peri-, and postnatal neurologic injuries and diseases.
8. Acquired etiologies include but are not limited to stroke, brain tumor, traumatic brain injury, anoxic or toxic encephalopathy, and non degenerative and degenerative neurologic diseases (including the dementias).

The author is concerned about the serious question of mindset of speech language pathologists if the cutting-edge clinical applications have to be evolved for assessment and intervention of persons with cognitive-linguistic (communicative) disorders. At the outset, there is a need to address the attitudinal barriers for interdisciplinary approach in order to inculcate positive mindset keeping in focus the person who is need of service. Once this is achieved, then there is an urgent need to build-up knowledge in the above area that invariably sets the pace and motivation to develop tests, tools, measures, reference norms and also to design technology for offline and online assessment. Such an approach will help to plan and carry out assessment and intervention. Steps have been taken in this direction by introducing specialization in courses and/or offering special courses in higher educational institutions and universities through choice-based-credit-based (CBCS) scheme, elective subject and/or value added courses. Yet, the basic issue of adequacy of clinical training in the much needed cognitive-linguistic dimension keeping ASHA (1987) framework as reference is highly questionable because of lack of interdisciplinary team at the faculty level as also trained manpower to impart skill training for clinical practice. A few institutions, though, have set the pace by including courses and conducting research, there appears to be immense need to sensitize the speech language pathologists to the

specific skills, strategies, activities and measures that can be used for clinical decisions. To summarize, the author is of the opinion that the gaps exist at each and every level of clinical protocol that requires immediate attention by the professionals if cutting-edge clinical applications have to be evolved.

Despite the above concerns, the author acknowledges the initiatives taken by the training and research institutions to organize platforms for professional exchange of knowledge in the domain of geriatric communication disorders. Such a movement by the medical and rehabilitative professionals offers promising directions to bridge the gaps that exist for decision-making in diagnosis as well as intervention for elderly &/or clinical population with cognitive-linguisitic (commuicative) disorders. Theoretical models, protocols and measures for assessment and management of cognitive-communicative disorders that are generally described and discussed in the technical fora give a considerable overview of direction to speech language pathologists to gear-up to the future. In addition to those described elsewhere in the book(s), released as proceedings, and with a strong hope for war-footed pro-active planning and actions in this area, the following tips are suggested for developing measures for out-patient clinic (OPD). The tips are given only as illustrative samples to explore cognitive-communicative ability. The reader(s) is, however, expected to develop his/her plethora of stimuli for clinical applications.

Sample Illustrations for Examining Cognitive-linguistic Deficits at Syntactic Level

Give the following sentences for a quick screening of cognitive communicative abilities:

Single, Double and Triple Negatives

(a) "I'm not feeling bad" vs. "I'm feeling good''.

(b) 'I did not see nothing' vs. 'I saw something'

(c) "I don't dislike not going to school." Vs. "I dislike going to school"

(d) Never have I owed anything to none

Active vs. Passive

(a) 'The milk was spilt by the child' vs. 'The child spilt the milk'

(b) 'Teacher advised the student' vs. 'Student was advised by the teacher'

Comparative

(a) 'He is taller than her but she is taller than the baby'

(b) 'The wooden chair is bigger than the steel chair and the cane chair is smaller than the steel chair'

Embedded and Subordinate Clause Sentences

(a) The box in which chocolates were kept is missing from the cupboard

(b) This is the mechanic who repaired Sita's car

(c) I skipped class because the teacher scolded me

Temporal and Spatial Order

(a) 'He went to grocery shop after office work' vs. 'He went to grocery shop before office work' vs. 'He went to office before grocery shop'

(b) 'The first boy who was in line went inside before the third boy' vs. 'The first boy who was in line came outside after the third boy' vs. 'The third boy who was in line came outside before the third boy'

(c) 'The car that was parked in front of the house is missing' vs. 'The car that was parked behind the house is missing'

Despite the administration of tailor-made tools/readily available tests for cognitive communicative assessment, the author strongly emphasizes that a clinician should develop sensitivity and ingenuity through profiling the communicative behavior of the individual in question which is an important clinical skill to manage individuals with cognitive-communication disorders.

Acknowledgments

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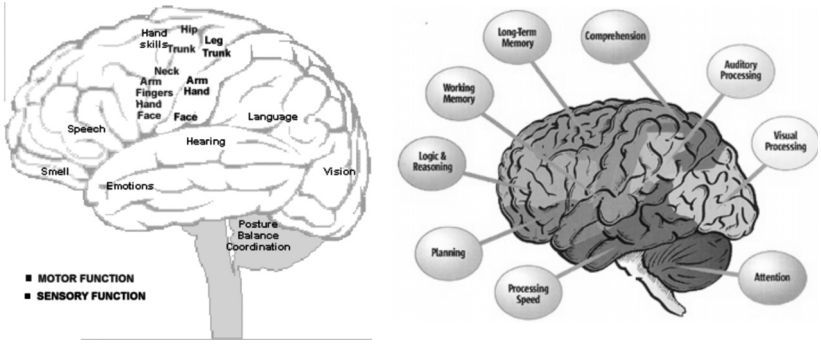
Notes

1. Senescence is ageing is the process of change in the organism, which over time reduces the probability of survival and the physiological capacity of self regulation, repair and adaptation of environmental demands.
2. Senility is more commonly referred to as dementia, is characterized by a decrease in cognitive abilities. This may include the person's ability to concentrate, to recall information, and to properly judge a situation.
3. Left planum temporale, underlying the Sylvian fissure near Wernicke's area is larger than the right in 70 per cent (nearly 80%) of right-handers. Sylvian fissure is larger on the left in 70 per cent of right-handers and this is said to be associated with left hemisphere specialization for language. Pars opercularis (Broca's area) is larger on the left. More grossly, the frontal region is wider and larger in the right hemisphere whereas the occipital region is wider and larger in the left hemisphere.
4. The author has used the terms 'cognitive-linguistic' and 'cognitive-communicative' interchangeably in this paper in view of the close proximity of the terms for clinical applications w.r.t. conceptualizing the components of both.

Appendix I

Localization of function in the left hemisphere



Source: www.google images retrieved on 03–07–2014.

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Physical and Psychological Health of Older Women in Urban India

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ABSTRACT

Health of an individual, both physical and psychological, are key factors in determining the quality of life especially in later life. A sample survey was conducted in Navi Mumbai to understand health and well-being of 450 older women across three class groups: Poor, (N=150), Middle income group (N=150) and Well to do group (N=150). These respondents were interviewed and information about their socio-demographic, economic, health and healthcare practices and Quality of life was obtained by using WHOQOL-BREF (WHO Quality of life instrument) to assess the respondents' perception about their physical and psychological health and their satisfaction with general health. Bi-variate analysis and multivariate analysis was performed in the analysis of findings. From the findings, it can be concluded that older women from upper strata are more likely to suffer from lifestyle diseases and chronic diseases while older women from poorer strata are more likely to suffer from severe stress especially due to financial insecurities and work pressure. Factors like age; Marital status; Educational status; Living arrangement; experience of Abuse; Change in involvement in decision-making; Income; acute and chronic morbidity, their satisfaction with general health and Level of Stress have a significant influence on the physical health of older women. Significant class differentials were observed in all the facets of psychological state except facet of accepting their bodily appearance.

Keywords: Health of older women, Quality of Life, Subjective well-being, Physical and Psychological Health, Older women in India

Population of India is experiencing a demographic transition like majority of the countries around the globe. The average life expectancy has increased considerable in the past five decades that has led to rapid ageing. Today, many Indians live well into their seventh, eighth, and even ninth decades of their life. According to the latest Indian Census (2011), there were around 104 million older persons, which is projected to triple (i.e. 323 million) by 2050 that will constitute over 20 per cent of total population in India. Ageing is undergoing a phenomenon of '*feminisation*' in India as older women outnumber older men in the 60 and above cohort. The sex ratio becomes even more favourable towards women with the increase in age, and oldest old (i.e. 80 and above) is the fastest growing group more so the oldest old women in India.

A vast majority of the nation's older population will experience declining health and functional incapacity with age. According to the NSSO 60th Round, older people (304 per 1,000 persons) reported over three times morbidity during last fifteen days as compared to general population (91 per 1,000 persons). The morbidity prevalence was further noticed to be highest among older women living in urban parts of the country (383 per 1,000 persons). As ageing is undergoing a phenomenon of feminisation[1] in India and the prevalence of morbidity is highest among older women, especially living in urban areas, it is essential to assess the health of older women in urban India and understand its determinants, for designing policy and programmatic interventions in order to improve their Quality of Life. Both physical and psychological health plays a key role in determining their quality of life especially in later life.

Various studies have clearly shown that older women have significantly poor health as compared to older men. Older women have higher probability of co morbidities in addition, have higher incidence of psychological disorders in developed countries as well as developing countries including in India (Jose & Sekher, 2013). Acute morbidity, chronic morbidity, and perception of stress have been identified as important indicators of health of older people that impact their overall QOL. Self-perception of stress health is one of the basic measures to assess an individual's perceived sense of psychological well-being.

Objective: The main objective of this study was to assess the Physical and Psychological health of older women across three economic class groups (poor, Middle income group and well to do group) and factors influencing their health.

Method

Sample

A cross-sectional study was conducted in Navi Mumbai to understand health and well-being of 450 older women across three class groups (Poor, MIG, and WTD) having equal numbers of respondents, were selected by using disproportionate stratified sampling technique.

Tools Used

Face-to-face interviews were conducted using a structured schedule to obtain information about their socio-demographic, economic, health and healthcare pracices and Quality of life. The World Health Organization Quality of Life (WHOQOL) was also used in this study. WHOQOL assesses the individual's perceptions in the context of their culture and value systems, and their personal goals, standards and concerns. The WHOQOL-BREF instrument comprises 26 items, which measure the following broad domains: physical health, psychological health, social relationships, and environment. (The WHOQOL-BREF is a shorter version of the original instrument . It is more convenient for use in large research studies or clinical trials).

Analysis of Data

Bi-variate analysis and multivariate analysis was used to analyse the data.

Findings

Socio-demographic Characteristics

The average age of older women was 67 years and there was no significant difference in age of respondents by class. Over half of total older women (50.9%) were widows. Older women from poor strata (61.3%) were more likely to be widowed. Almost half of the total older women (46.4%) had no formal education. Almost all (94%) the older

women from poor group had no formal education. A little over a quarter (28.7%) from MIG & about a fifth (16.7%) of older women from well-to-do class, had no formal education. Although, almost half (50.9%) of the respondents migrated from Mumbai, it was observed that majority of (54.0%) of respondents from poor strata migrated from rural areas of Maharashtra due to drought in their respective villages during 1970s while respondents from upper strata migrated to Mumbai as this place offered them better living conditions.

On exploring the living space of older women it was observed that a majority of older women (78.0%) from poor strata did not have a separate living space for themselves while in upper strata a majority (88 per cent in WTD and 61 per cent in MIG) of respondents had a separate room for themselves. About half of the respondents had participated in work force. However, on disaggregating the data by class, it was observed that a majority of respondents from poor class (80.7%), a little over one-third respondents (38.0%) from MIG and over a quarter of respondents (28.7%) from WTD had ever worked. About half of the respondents (49.6%) had no income – hence were dependent of their family members for economic needs. The mean income of respondents (and spouse) that had some source of income, from poor, MIG and well-to-do class was about Rs 4,302, Rs 8,568 and Rs 15,287 respectively.

Morbidity and Health Careutilisation

Table 1
Health Profile of Older Women by Economic Class

Indicator	*Poor*	*MIG*	*Well-to-do*	*Total*	*X2 (p-value)*
Acute morbidity	49.3	42.0	44.0	45.1	1.74
Chronic Morbidity	41.3	31.3	48.0	40.2	8.78*
ADL affected due to illness	46.0	34.0	56.7	45.6	15.55***
Physical Health (Mean; SD)	12.67 (1.88)	13.06 (2.13)	13.23 (2.43)	12.99 (2.17)	2.62
Psychological state (Mean; SD)	11.79 (1.79)	12.88 (1.94)	13.59 (2.07)	12.75 (2.07)	33.11*

Note: * indicates $p < 0.05$; ** indicates $p < 0.01$ and *** indicates $p < 0.001$*

In order to understand the health of older women information about acute morbidity (i.e. any episode of illness reported during last two weeks of survey), chronic morbidity (i.e. any diagnosed illness or hospitalization in previous one year) effect of illness on activities of Daily Living and perception about level of stress and satisfaction with general health was collected. Nearly half of the total respondents (45.1%) reported to suffer from acute morbidity in last 2 weeks prior to survey (Table 1). Although, the proportion of respondents from poor class reporting acute illness like fever, cough, diarrhoea, was highest followed by well-to-do class and MIG (49.3%, 44.0% and 42.0 respectively), it is not statistically significant.

About two-fifth of the total respondents (40.2%) reported chronic morbidities in previous one year. Most of the respondents reporting chronic morbidities were from well-to-do class followed by respondents from poor class and MIG (48.0%, 41.3% and 31.3% respectively) and the differentials were observed to be statistically significant. Most of the respondents from well-to-do class reported lifestyle related morbidities while respondents from poor class reported chronic ailments like pain in joints, asthama, which has relation to their occupation in construction and industrial units and labour work. Illness especially chronic in nature has a negative effect on ADL in older people. Over two-fifth of the total respondents (45.6%) reported that their illness has affected their ADL. On class-wise disaggregation, it was observed that one in two respondents from well-to-do class (56.7%) reported that their ADL have been affected by their illness. As most of the older women from well-to-do class reported suffering from diagnosed chronic illness, it has a relation with their reporting of higher restriction in their ADL. Over two-fifth respondents (46.0%) from poor strata also reported that their ADL has been affected due to chronic illness. There is a significant difference in reporting of effect of illness on ADL.

Physical Health

Table 2

Per cent distribution of respondents according to their Physical health and class

Physical Health Domain				
Pain or discomfort	*Poor (N=150)*	*MIG (N=150)*	*Well-to-do (N=150)*	*Total (N=450)*
Little	51.3	38.7	50.7	46.9
Moderate	27.3	40.0	27.3	31.6
Very much	21.3	21.3	22.0	21.6
$\chi^2(4,450)=8.36, (p=0.079)$				
Dependence on Medication				
Little	44.0	48.7	46.0	46.2
Moderate	40.7	27.3	15.3	27.8
Very much	15.3	24.0	38.7	26.0
$\chi^2(4,450)=33.75, (p<0.001)$				
Energy & fatigue				
Little	32.0	26.0	24.0	27.3
Moderate	60.7	54.7	50.0	55.1
Mostly	7.3	19.3	26.0	17.6
$\chi^2(4,450)=18.75, (p<0.001)$				
Mobility				
Poor	15.3	16.0	10.0	13.8
Neither poor nor good	27.3	28.0	29.3	28.2
Well	57.3	56.0	60.7	58.0
$\chi^2(4,450)=2.76, (p=0.598)$				
Sleep & Rest				
Dissatisfied	32.0	17.3	20.0	23.1
Neither satisfied nor dissatisfied	29.3	29.3	31.3	30.0
Satisfied	38.7	53.3	48.7	46.9
$\chi^2(4,450)=11.65, (p<0.05)$				
Activities of Daily Living (ADL)				
Dissatisfied	16.7	11.3	15.3	14.4
Neither satisfied nor dissatisfied	46.0	37.3	26.7	36.7
Satisfied	37.3	51.3	58.0	48.9
$\chi^2(4,450)=16.10, (p<0.01)$				
Working Capacity				
Dissatisfied	22.0	17.3	18.7	19.3
Neither satisfied nor dissatisfied	56.7	44.7	38.0	46.4
Satisfied	21.3	38.0	43.3	34.2
$\chi^2(4,450)=18.22, (p<0.001)$				

Various facets of physical health like experience of pain and discomfort, perception about dependence on medication, energy and fatigue, mobility, sleep & rest, satisfaction with their ADL and working capacity were explored. The mean scores for physical health of total respondents was observed to be 12.99 (table 2), with lowest mean physical health among the older women from poor class (12.67) followed by older women from MIG (13.06) and the highest mean physical health scores were observed among older from WTD class (13.23). About a quarter of the total respondents (21.6%) reported that (physical) *pain* prevents them from doing what you need to do to a great extent while, about half (46.9%) of the total respondents reported that their physical pain affects their activities to a little extent only.

About two-fifth of the respondents (38.7%) from well-to-do class reported that they are very dependent on medication to maintain function in their daily life as compared to only about one-fifth (15.3%) respondents from poorer strata reporting very much dependence on medication. It was observed that *dependence on medication* increased as economic class of the respondents improved and this difference is statistically significant. Less than one-fifth of the total respondents reported that they mostly have the energy to perform their tasks, while a majority of the total respondents reported moderate *energy levels* to perform their daily activities suggesting a need to promote active ageing through healthy lifestyle. It was observed that over one-third of respondents from poorer strata reported that they have little energy to perform day-to-day tasks. Over half of the total respondents (58.0%) reported that they were able to get around well reflecting that their *mobility* is maintained. All the facets of physical health except mobility and pain and discomfort, all other facets showed significant class differentials.

Less than half of the total respondents (46.9%) reported satisfaction with their *sleep and rest*, while over one-fifth of the total respondents reported dissatisfaction with their sleep and rest. Nearly one-third of the respondents from poorer strata reported dissatisfaction with sleep and rest patterns compared to less than one-fifth respondents from MIG and well-to-do class (17.3% and 20.0% respectively). Various factors like lack of own space, financial and social insecurities besides loneliness due to social isolation, contributed to

dissatisfaction with rest and sleep amongst these respondents. About half of the total respondents (48.9%) were satisfied with their ability to perform ADL, however only about one third of the respondents from poorer strata were satisfied with their ability to perform AD as compared to over two-fifth respondents from well-to-do and MIG class (43.3% and 38.0% respectively).

There is a significant difference in satisfaction with ability to perform ADL amongst respondents from different social economic class, suggesting higher dissatisfaction amongst respondents from poorer strata as compared to well-to-do class. It was observed in the present study, only about one-third of the total respondents (34.2%) were satisfied with their *working capacity*. There was a significant class differential in satisfaction with their working capacity. Only one-fifth of the respondents from poorer strata were satisfied with their working capacity as compared to over two-fifth of the respondents from well-to-do class and MIG (43.3% and 38.0% respectively).

The data clearly suggests that a greater proportion older woman from poor class reported their dissatisfaction with all facets of physical health except dependence on medication where a higher proportion of older women from well-to-do class reported dependence on medication as compared to older women from MIG or poor class.

Physiological Health

Table 3

Per cent distribution of respondents according to their Psychological Health and class

Enjoy Life	*Poor (N=150)*	*MIG (N=150)*	*Well-to-do (N=150)*	*Total (N=450)*
Little	33.3	12.0	6.7	17.3
Moderate	43.3	43.3	28.7	38.4
Very much	23.3	44.7	64.7	44.2
$\chi^2(4,450)=69.04, p<0.001$				
Feel life to be meaningful				
Little	30.0	14.7	8.0	17.6
Moderate	41.3	35.3	28.7	35.1
Very much	28.7	50.0	63.3	47.3
$\chi^2(4,450)=44.56, (p<0.001)$				

Cont'd...

Cont'd...

Memory and concentration				
Slightly	49.3	46.7	29.3	41.8
Moderate	44.7	42.7	51.3	46.2
Very much	6.0	10.7	19.3	12.0
$\chi^2(4,450)=21.25, (p<0.001)$				
Accept your bodily appearance				
Little	24.0	27.3	27.3	26.2
Moderate	44.7	34.0	42.0	40.2
Mostly	31.3	38.7	30.7	33.6
$\chi^2(4,450)=4.48, (p=0.344)$				
Satisfaction with yourself				
Dissatisfied	15.3	8.7	5.3	9.8
Neither satisfied nor dissatisfied	39.3	34.7	32.0	35.3
Satisfied	45.3	56.7	62.7	54.9
$\chi^2(4,450)=13.36, (p<0.01)$				
Negative Feelings				
Seldom	30.0	48.7	51.3	43.3
Quiet Often	42.7	32.7	27.3	34.2
Very Often	27.3	18.7	21.3	22.4
$\chi^2(4,450)=17.30, (p<0.01)$				

Note: Figure in parenthesis represents frequencies

There is a substantial empirical evidence about importance of psychological state of an individual in determining their QOL especially of older people (Bowling & Iliffe, 2011). Various facets like enjoyment in life, memory and concentration, life to be meaningful, satisfaction with self, accept bodily appearance and frequency of negative feelings were explored to elicit respondent's psychological state. These facets play an important role in defining the psychological state of an individual (Table 3). Less than half of the total respondents (44.2%) reported that they *enjoy their life* very much, followed by a little over one-third respondents reporting that they enjoy their life moderately.

The mean score of psychological health of total respondents reported is 12.75. The class-wise data shows that the mean scores of psychological domain increase as economic class of older women steps up (Poor: 11.79; MIG: 12.88; WTD: 13.59). The mean values of psychological domain were consistent across economic class groups

(CV=0.15 in all classes) suggesting that older women are highly homogenous within economic class with respect to various aspects related to psychological state.

On disaggregating data by class, it was observed that a majority of older women from poorer strata reported moderate enjoyment of their life and over one-third respondent enjoyed life to a little extent only. This trend was reverse in respondents from well-to-do class, i.e. a majority of respondents (64.7%) reported that they enjoy their life very much and only an insignificant proportion of respondents (6.7%) reported little enjoyment in their life. A similar pattern was reported by respondents from MIG as well where over two-fifth of the respondents (44.7%) reported that they enjoy their life very much and a similar proportion (43.3%) reported moderate enjoyment in their lives. There was a significant class difference in reporting enjoyment in life by respondents in this study suggesting that most of the older women from poorer strata have little enjoyment in life while most of the older women from well-to-do class and MIG enjoy their life moderately to very much.

Older women's perception about *meaningfulness of their lives* was explored as a facet encompassing psychological state. It was observed that a little less than half of the total respondents (47.3%) reported that they feel their lives to be very meaningful. Nearly one-fifth of the total respondents (17.6%) reported that they feel their lives to be of little meaning. All the respondents were questioned on how well were the respondents able to *concentrate*. It was observed that only about one-tenth of the total respondents (12.0%) reported that they were able to concentrate very well. A majority of the respondents (46.2%) reported that they were able to concentrate moderately (46.2%) and a substantial proportion reported that they could concentrate slightly (41.8%).

In order to assess self-image of respondents, information was sought about the extent to which they accept their *body appearance*. Around one-third of the total respondents (33.6%) reported that they mostly accept their body appearance. About two-fifth of the respondents (40.2%) moderately accepted their body appearance while a quarter of the respondents (26.2%) reported that they accept their body appearance to a little extent. There was no significant class

difference in accepting body appearance amongst the respondents in this study. Over half of the total respondents (54.9%) reported to be *satisfied with self* and about one-tenth respondents (9.8%) were dissatisfied with themselves. A majority of respondents (62.7%) from well-to-do class reported satisfaction with self while lesser proportion of respondents from poor class and MIG (45.3% and 56.7%) reported satisfaction with themselves.

Frequency of *negative feelings* is another facet that was explored to assess psychological state of older women. Higher frequency of negative feelings negatively affects QOL of an individual. In the study, it was observed that about a quarter of the respondents (22.4%) reported that they have negative feelings very often and about one-third (34.2%) reported that they have negative feelings quiet often. Little less than two-fifth of the respondents reported that, they seldom have negative feelings. Significant class differentials were observed in all the facets of psychological state except facet of accepting their bodily appearance.

Perception of Stress in Daily Life

Table 4
Per cent distribution of respondents according to their perception of stress in daily life and class

Perception of stress	*Poor (150)*	*MIG (150)*	*Well-to-do (150)*	*Total (450)*
Very severe	14.7	4.7	6.7	8.7
	(22)	(7)	(10)	(39)
Severe	49.3	35.3	29.3	38.0
	(74)	(53)	(44)	(171)
Moderate	21.3	22.7	26.0	23.3
	(32)	(34)	(39)	(105)
Hardly ever	14.7	37.3	38.0	30.0
	(22)	(56)	(57)	(135)
$\chi^2(6, 450)=36.395$, $p < 0.001$				

Older women's perception of stress in their daily life significantly affects their psychological health, which is an essential component of overall QOL. In the present study, a little less than one-tenth of the total respondents (8.7%) reported that they have very severe stress,

about two-fifth of the total respondents (38.0%) reported to have severe stress in their life, and about a quarter reported moderate stress (23.3%) (Table 4). About one-third of the total respondents (30.0%) reported that they hardly face any stress in their lives.

Almost half of the respondents (49.3%) from poorer strata, a little more than one-third of respondents (35.3%) from MIG and about one-third respondents from well-to-do class (29.3%) reported to face severe stress. While, very few (14.7%) respondents from poorer strata reported hardly any stress in their lives as compared to over one-third respondents from MIG and well-to-do class (37.3% and 38.0% respectively). In the study, perception of stress amongst older women varied significantly with class.

These findings suggest that older women from poorer class have severe stress as compared to well-to-do and MIG class. This was also reflected during the interviews when majority of older women from poorer strata were stressed due to ill health and financial insecurity. Burden of healthcare expenditure as well as the lack of social security nets emerged as major concerns amongst older women from poorer strata. In order to understand the reasons for stress, information about major stressors was sought from the respondents. Knowledge about major stressors helps policy makers to prioritise issues to be dealt to improve QOL of older women. A majority of respondents (73.0%) reported ill health as the major stressor, followed by work stress (i.e. their involvement in household chores, care-giving roles and for respondents still working in labour-force related to their work related stress).

Satisfaction with General Health

Table 5

Per cent distribution of respondents according to their satisfaction with General Health and class

General Health	*Poor (150)*	*MIG (150)*	*Well-to-do (150)*	*Total (450)*
Dissatisfied	24.7	19.3	18.0	20.7
	(37)	(29)	(27)	(93)
Neither satisfied nor dissatisfied	58.0	50.7	51.3	53.3
	(87)	(76)	(77)	(240)
Satisfied	17.3	30.0	30.7	26.0
	(26)	(45)	(46)	(117)

$\chi^2(4,450)=9.24$, $(p=0.055)$

Older women's satisfaction with their general health is an important factor that influences their QOL. It was observed that only about a quarter of the total respondents (26.0%) were satisfied with their general health (Table 5). It was further observed that over half of the respondents (53.3%) took a neutral stand suggesting that they were neither dissatisfied nor satisfied with their health. On further exploration of reasons for choosing this option, respondents reported that although they were not satisfied with their health, they did not reported dissatisfaction because they attributed health issues as a normal outcome of ageing. They felt that as a person ages, these health concerns will follow and will increase, hence there is no reason to feel dissatisfied with their health though they were not satisfied with it either. Nearly a quarter of the respondents from poorer (24.7%) strata reported dissatisfaction with their health as compared to less than one-fifth respondents reporting the same from MIG and well-to-do class (19.3% and 18.0% respectively). Over one-third of the respondents from well-to-do class and MIG (30.7% and 30.0%) and only about one-fifth respondents from poorer strata (17.3%) were satisfied with their general health. The data reveals that a majority of older women are not satisfied with their general health across all economic classes, however higher proportion of older women from well-to-do class tend to report satisfaction with their general health as compared to older women from poor class.

Factors Influencing Physical and Psychological Health of Older Women

The interaction of various demographic, social and family related, economic factors, morbidity, community participation and support system, with economic class on the Physical and Psychological health of older women was studied. Multivariate analysis using two-way ANOVA clearly shows that older women from poor class have the lowest mean physical health scores followed by older women from MIG and the highest mean physical health scores were observed among older from WTD class. Advancing age resulted in decrease in mean scores of physical health of older women. Marital status of older women has an impact on their physical health as reflected in the findings above, that currently married older women have a better physical health as compared to those not currently married (Table 6).

Older women who had some education had better physical health as compared to those who had no formal education.

Table 6

Distribution of mean scores of Physical health of respondents according to their economic class and selected factors

Factors	*Poor (150)*	*MIG (150)*	*WTD (150)*	*Total (450)*
A. DEMOGRAPHIC FACTORS				
Age (yrs)**				
60–64	13.15	13.94	13.92	13.65
65–69	12.91	13.17	13.28	13.14
70–74	12.63	12.02	13.54	12.69
75 and above	10.91	11.71	11.47	11.39
Marital Status**				
Currently married	13.00	13.64	13.73	13.50
Others	12.48	12.56	12.59	12.54
B. SOCIAL & FAMILY RELATED FACTORS				
Ever-attended school*				
Yes	13.65	13.18	13.38	13.30
No	12.61	12.77	12.53	12.63
Educational status*				
No education	12.61	12.77	12.55	12.64
Up to primary	13.71	12.54	13.12	12.87
Up to Secondary/HSC	13.43	13.42	12.78	13.10
Up to Graduation/PG		14.40	14.75	14.71
Living arrangement*				
Living Alone	13.07	13.62	11.24	12.50
With Spouse	12.86	13.87	14.26	13.92
With Spouse and children	13.05	13.45	13.59	13.38
children or others	12.45	12.69	12.81	12.63
Separate living space				
Yes	12.30	13.20	13.20	13.10
No	12.80	13.00	13.30	12.90
Abuse**				
yes	12.22	12.72	11.51	12.28

Cont'd...

Cont'd...

never	12.93	13.14	13.41	13.19
Change in Decision making**				
Improved	13.10	14.02	14.16	13.90
others	12.58	12.64	12.5	12.58
C. ECONOMIC FACTORS				
Ever worked				
Yes	12.68	13.54	13.53	13.07
No	12.65	12.76	13.12	12.91
Any income**				
yes	13.46	13.44	13.76	13.58
no	12.15	12.69	12.36	12.39
D. HEALTH RELATED FACTORS				
Acute morbidity**				
Yes	12.39	12.33	12.51	12.41
No	12.95	13.58	13.80	13.46
Chronic morbidity**				
Yes	12.21	12.6	12.59	12.46
No	13.00	13.26	13.83	13.34
Stress*				
Very severe	12.18	11.67	12.74	12.23
Severe	12.85	12.56	12.51	12.67
Moderate/mild	12.70	13.19	12.48	12.78
Hardly ever	12.55	13.61	14.40	13.77
Satisfaction with general health**				
Dissatisfied	10.97	11.19	10.90	11.02
Neither satisfied nor dissatisfied	12.93	13.03	13.01	12.99
Satisfied	14.26	14.30	14.98	14.56
Routine Health Check-up				
No	12.84	13.42	12.91	13.05
Yes	11.75	12.45	13.43	12.89
E. COMMUNITY PARTICIPATION				
Membership in CBO/Senior citizen gp				
no	12.72	13.03	13.15	12.97
yes	10.29	13.43	14.40	13.44

Cont'd...

Cont'd...

Frequency of visit family/friends				
Never	12.00	12.32	11.54	12.05
Once or twice per year	12.79	13.23	12.76	12.93
Once or twice per month	12.75	13.13	13.63	13.25
Once or twice per week	13.26	13.79	13.85	13.75
Daily		10.57	14.00	12.86
Participation in community Religious events				
Never	11.97	12.35	12.60	12.27
Once or twice per year	13.04	13.23	13.50	13.22
Once or twice per month	12.84	12.95	13.63	13.25
Once or twice per week	12.13	14.20	12.30	12.89
Daily	11.43	13.62	14.20	13.76
F. SUPPORT SYSTEM				
Son(s) alive				
No	12.60	14.15	12.60	13.11
Yes	12.69	12.88	13.34	12.97
Someone to trust				
Yes	12.68	13.19	13.24	13.04
No	12.63	12.36	13.19	12.71
Total	12.67	13.06	13.23	12.99

Note: *denotes $p < 0.05$; **denotes $p < 0.001$; Class and stress; class and routine health checkup; class and son(s) alive; class and membership in CBO; interaction effect significant at $p < 0.05$.

It was also observed that older women who had ever participated in work force had a better physical health as compared to those who never participated, although it was not statistically significant. Similarly, older women having any income had a better physical health as compared to those who did not have any income, and those results were statistically significant. Older women living with spouse have the best physical health followed by those living with their spouse and children. It is clearly reflective of influence of family members especially presence of spouse that has a positive effect on the physical health of older women. However, it was observed that older women from poor class living alone had a better physical health as compared to physical health of older women in other living arrangements. It is also important to highlight that older women from

well-to-do class living alone have the poorest physical health amongst all respondents.

Besides living arrangement, having a separate living space has a positive impact on the physical health of older women. Older women facing abuse have significantly poor physical health as compared to those who have never experienced it. The results clearly reflect that improved decision-making in the household has a significantly positive effect on physical health of older women. A feeling of companionship, i.e. having someone to trust or confide in has a positive effect on the physical health of older women. Acute morbidity as well as chronic morbidity negatively impact physical health of older women and these effects were statistically significant. Perception of stress in life had an effect on physical health with higher stress leading to poor physical health of older women.

Older women's satisfaction with their general health also had an effect on their physical health, as those satisfied with their general health had better physical health than those who were dissatisfied or were neither dissatisfied nor satisfied. It clearly reflects that the interrelation between satisfaction with general health and physical health of older women. Community participation improves physical health however a higher frequency of visit to family and friends leads to lower mean physical health scores hence an optimal level of participation helps in improving physical health of older women.

As observed above, age, marital status, formal education, living arrangement, experience of abuse, change in decision-making after growing old, source of income, acute or chronic morbidity, and satisfaction with general health significantly affected their physical well-being across economic class groups among community dwelling older women in urban areas.

Psychological health declines with advancing age among older women. It was also observed that older women from poor class have the poorest mean scores for psychological health across all age groups with oldest women (75 years and above) showing lowest psychological well-being (table 7). Currently married older women have a better psychological state as compared to those widowed, separated, or divorced, across all classes, with least psychological wellbeing among older women who were not currently married belonging to poor class.

Older women who had received any formal education had a significantly better psychological state as compared to illiterate older women. on exploring the effect of economic factors on psychological state, it was observed that older women from poor class who had ever worked had lower mean psychological state than those who never worked however, older women from MIG and WTD showed contrasting results with those who ever worked had better psychological state than their counterparts. On analysing role of any income on mean psychological state, it was observed that total respondents, those who had some income had a slightly better psychological state than those who didn't have any income however, this difference was significant.

Table 7

Distribution of mean scores of Psychological state of respondents according to their economic class and selected factors

Factors	*Poor (150)*	*MIG (150)*	*WTD (150)*	*Total (450)*
A. DEMOGRAPHIC FACTORS				
Age (yrs)				
60–64	11.86	13.23	13.65	12.87
65–69	11.76	12.58	13.76	12.81
70–74	11.81	12.44	13.88	12.61
75 and above	11.56	12.94	12.90	12.52
Marital Status**				
Currently married	12.23	13.28	13.98	13.28
Others	11.52	12.54	13.09	12.29
B. SOCIAL/FAMILY RELATED FACTORS				
Ever-attended school*				
Yes	13.11	13.05	13.56	13.32
No	11.70	12.47	13.72	12.11
Educational status				
No education	11.70	12.56	13.81	12.13
upto primary	13.05	12.63	12.99	12.80
Upto secondary/HSC	13.33	13.18	13.21	13.20
Upto graduation/PG		13.47	14.65	14.49

Cont'd...

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Living arrangement*				
Living Alone	9.83	12.78	12.37	11.59
With Spouse	11.33	14.12	14.08	13.60
With Spouse and children	12.40	13.03	13.91	13.15
children or others	11.71	12.64	13.31	12.47
Separate living space				
Yes	10.85	12.97	13.61	13.03
No	12.05	12.83	13.44	12.48
Abuse**				
yes	11.01	12. 00	11.43	11.38
never	12.22	13.11	13.81	13.14
Change in Decision-making**				
Improved	12.17	13.48	14.37	13.64
Others	11.70	12.62	12.98	12.36
C. ECONOMIC FACTORS				
Ever worked				
yes	11.61	13.04	13.81	12.41
no	12.51	12.78	13.50	13.08
Any income				
yes	11.70	12.88	13.87	12.98
no	11.84	12.88	13.12	12.52
D. HEALTH FACTORS				
Acute morbidity**				
Yes	11.64	12.18	13.29	12.34
No	11.93	13.39	13.83	13.09
Chronic morbidity**				
Yes	11.44	12.26	13.1	12.31
No	12.03	13.17	14.04	13.05
Stress**				
Very severe	10.73	10.67	12.13	11.08
Severe	11.59	12.43	13.14	12.25
Moderate/mild	12.00	12.67	13.32	12.70
Hardly ever	13.21	13.71	14.39	13.92
Satisfaction with general health**				

Cont'd...

Cont'd...

Dissatisfied	11.03	10.87	11.90	11.23
Neither satisfied nor dissatisfied	11.77	13.13	13.59	12.79
Satisfied	12.92	13.75	14.58	13.89
Routine Health Checkup				
No	11.68	13.03	13.12	12.43
Yes	12.38	12.63	13.88	13.27
E. COMMUNITY PARTICIPATION				
Membership in CBO/Senior citizen group				
No	11.76	12.91	13.50	12.71
Yes	12.89	12.33	14.93	13.65
Frequency of visit family/friends*				
Never	11.45	12.75	11.73	12.04
Once or twice per year	12.20	12.70	13.29	12.64
Once or twice per month	11.40	13.13	13.93	13.03
Once or twice per week	9.33	13.00	14.16	13.18
Daily		14.33	13.67	13.89
Participation in community Religious events*				
Never	11.87	13.09	12.87	12.61
Once or twice per year	12.11	12.83	13.84	12.78
Once or twice per month	11.58	12.65	13.75	12.96
Once or twice per week	9.79	13.19	13.28	12.46
Daily	12.00	12.11	14.29	13.19
F. SUPPORT SYSTEM				
Son(s) alive*				
No	10.79	12.35	12.48	11.85
at least one son	11.96	12.97	13.77	12.90
Someone to trust				
Yes	11.82	13.08	13.52	12.82
No	11.66	11.83	14. 00	12.40
Total	11.79	12.88	13.59	12.75

Note:

- * denotes $p < 0.05$; **denotes $p < 0.001$;
- Class effect was found to be significant at $p < 0.01$ in all factors except CBO membership and routine health check-up.

- Interaction effect of ever-worked with class, separate living space with class; Someone to trust; frequency of visit to family and friends; routine health check-up; and participation in religious events at community level with class was found to be significant ($p < 0.05$).

Living arrangement has significant impact on psychological state of older women. It was observed that older women who were living alone had the lowest mean psychological scores, while those living with their spouse had the best mean scores. Older women from poor class and living alone had lowest psychological well-being and were the most vulnerable. Having a separate living space had a positive impact on psychological state of older women from MIG and WTD class, however among poor class older women having separate space had lower scores for psychological state. Older women experiencing abuse has a significantly low psychological health as compared to older women who never faced abuse. Factors like change in decision-making after turning 60, also have a bearing on psychological well-being of older women. Having someone to confide was also explored to elicit its effect on psychological domain of QOL.

It was observed that older women having someone to trust had better psychological means as compared to those who didn't have anybody to trust. Older women who had suffered from acute illness had significantly lower psychological health as compared to those who did not suffer from any acute illness. Similarly, chronic illness also has a significant negative effect on the psychological health of older women. Older women having very severe stress had the lowest mean psychological health while those who perceived hardly ever stress had the highest psychological mean scores. A decrease in mean scores of psychological state with increase in level of stress was observed in all economic classes. These results were observed to be statistically significant at $p < 0.001$.

Similarly, older women who were satisfied with their general health had a higher mean score for psychological state as compared to those dissatisfied with it. Satisfaction with general health also has a significant positive relationship with psychological wellbeing, i.e. higher the satisfaction with general health, better the psychological state of older women. Community participation in religious activities as well as visiting family and friends is observed to improve psychological well-being of older women. Support system like having at least

one son alive and having someone to trust improve the psychological health of older women across all classes.

As reflected from the findings above, factors that significantly affect the psychological well-being of older women across class groups were, marital status, formal education, living arrangement, experience of abuse, change in decision-making, acute and chronic morbidity, satisfaction with their general health in addition to frequency of visits to family and friends and having a support system, i.e. son alive to take care of them in old age.

Discussion and Conclusion

The findings clearly show that economic class plays a vital role in determining the physical and psychological well-being of older women. Economic interacts with other socio-demographic and economic factors to have an impact of their well-being. Older women from upper strata are more likely to suffer from lifestyle diseases and chronic diseases while older women from poorer strata are more likely to suffer from severe stress especially due to financial insecurities and work pressure. Majority of older women across all class groups utilise healthcare, however majority of older women from poor strata utilise care from public facilities in order to minimise their out-of-pocket expenditure while older women from upper strata usually seek treatment from private providers. Significant class differentials were observed in all the facets of psychological state across class groups, except facet of accepting their bodily appearance.

The data clearly suggests very high acute morbidity among older women residing in urban areas irrespective of class. Older women from upper class had significantly high chronic morbidity. The incidence of chronic illness was also quiet high, i.e. over two out of five older women reported suffering from some form of diagnosed chronic illness, which has implication son their health as well as economic aspects due to lack of free/subsidized health for older women. The findings reveal that majority of older women from well-to-do class reported that their ill health has affected their activities of daily living followed by older women from poor class and MIG class.

These findings have immediate policy and pragmatics implications. There is a need to expedite the process of revising the National

Policy for older people with the focus on women and oldest old group. There is a need to allocate resources for strengthening the health system and formulate strategies to promote healthy ageing. It is further important to ensure access healthcare at no out-of-pocket expenditure, to all older people.

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Note

1. Feminisation of Ageing in India, i.e. as the proportion of older women is increasing at a faster pace than older men. According to Census of India (2011), older women outnumber older men in both 60 and above cohorts (17 Lakh), more so in 80 and above cohorts by 7.2 Lakhs.

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Does Hearing Impairment Affect Quality of Life of Elderly?

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ABSTRACT

The present study was an attempt to assess hearing loss and its impact on QOL of elderly. A sample of 120 individuals with normal hearing (n=47), using hearing aid (n=39) and impaired hearing (n=34) in the age group of 60 and above, both male and female from rural and urban background was drawn randomly from homebound, ENT Department of PGIMS, Rohtak and private clinics in Rohtak, (Haryana). Hindi version of HHIE (Hearing Handicap Inventory for Elderly, by Ventry and Weinstein (1982) was used to assess hearing loss and its impact on QOL of elderly. The F-value, (56.732, p<01) indicates that there is a significant difference in QOL among the three groups. Further tH-test reveals significant difference in QOL between normal and hearing impaired elderly and also between normal and those of using hearing aid. Interestingly the present findings highlight the latent fact that there exists no significant difference in QOL of impaired hearing elderly and those of using hearing aid. Demographic factors other than background did not show any marked difference in QOL. The present findings suggest that effective communication strategies must be used to improve the QOL for older individuals with hearing loss and emphasize the strong need to improve the quality of hearing aid.*

Keywords: Quality of life (QOL), Elderly, Hearing Impaired, Communication Strategies, Hearing aid.

Hearing loss is one of the most prevalent chronic conditions affecting older adults yet it is often ignored and poorly managed in the primary care setting. It is often characterized more by what is missed than by what is heard. The day to day life is seriously hampered which adversely affects the communication system and results in physical, mental problems and therefore a higher degree of social isolation and withdrawal from life activities.

World health organization's international classification of functioning disability and health (ICF: WHO, 2001) refers hearing impairment as lack of sensitivity to sound as a result of anatomical and physiological age-related changes to the auditory system. The ICF describes the consequences of a disease at three levels, viz. the body (impairment), the person (activity limitations) and the person as a social being (participation restrictions).

Presbycusis is the most common form of hearing loss, due to the effects of aging on the peripheral or central auditory systems and the cumulative effects of wear and tear (Demers, 2002, Gates and Mills, 2005). It affects approximately 40 per cent of individuals at the age of 60 and 90 per cent of the individuals over the age of 80 (Pirozzo, *et al.,* 2003). Gates and Mills (2005) similarly reported nearly 80 per cent of hearing loss in individuals 65 years of age or older.

Hearing loss has profound effect on communication and quality of life (QOL). WHO (1993) defines QOL as the individuals perception of his/her position in life in context of the culture and value systems in which he/she lives and in relation to his/her goals, expectations, standards and concerns. Many studies have shown that the inability to communicate effectively affects socialization, independence and participation in activities of daily life (ADL) (Bess, *et al.,* 1989; Mulrow, *et al.,* 1990; Carabellese, *et al.,* 1993; Weinstein, 2000; Kiessling, *et al.,* 2003). Evidence for the negative effect on emotional and psychological well-being of elderly is gleaned from large body of researches reporting depression due to loneliness (Kricos, 1995, Davis, 1995), stress (Ventry, and Weinstein 1982), frustration at everyday communication (Beattie, 1981), increasing problems relating to their involvement in life situations, embarrassment (Meadow-orlans, 1985), irritability, isolation, frustration and activity limitations (Ciorba, *et al.,* 2010). The worst situation is the mortality risks in older persons due to hearing impairment (Karpa, *et al.,* 2010) as reported by Cacchione (2014) in a review paper on sensory impairment.

Hearing impairment due to ageing can't be medically or surgically treated. The only appropriate help is to amplify sound through a hearing aid. The benefits and satisfaction hence improvement in quality of life after using hearing aid have been reported by a large number of studies (Yueh, *et al.,* 2005; Magni, *et al.,* 2005; Vuorialho, *et al.,* 2006; Chislom, *et al.,* 2007; Nishinage Chi, *et al.,* 2007; Lotfi, *et al.,* 2009; Gopinath, *et al.,* 2012) also reported the improvement in QOL in general as far as leisure activities are concerned but at the same they have observed no change in the frequency of negative feelings even after the usage of hearing aid. On the contrary a study by Sangster, *et al.,* (1991), reveal poor quality of life in elderly using hearing aids, because their aids require modifications and replacement time to time. In another study it has been found that only quarter of hearing impaired elderly people actually seeks and use hearing aids (Cox, 2005).

Studies across the world have proved that the hearing impairment has an adverse impact on the QOL of people. However, there are very few studies in this area in Indian scenario, so the present authors decided to undertake the study with the following objectives:

Objectives

1. To identify the level of self perceived hearing impairment in elderly.
2. To assess the effects of hearing impairment on the QOL of elderly.
3. To compare the QOL of elderly with self perceived normal hearing , impaired hearing and with those of using hearing aid.
4. To investigate the influence of demographic variables such as gender and background on hearing impaired elderly and using hearing aid.

Method

Sample

A multi-group design was used by taking a purposive sample of 120 elderly, aged 60 years and above, both male and female from rural

and urban background of North India from home bound, ENT Dept. of PGIMS, Rohtak and Private clinics of Rohtak City, Haryana. The sample was consisting of three groups, i.e. Group-I elderly with self perceived normal hearing (n=47), Group-II using hearing aid (n=39), Group-III hearing impaired (deaf, n = 34) with the following inclusion and exclusion criteria.

Inclusion Criteria

1. People in age group of 60 years and above were included.
2. Both genders were well represented.
3. Elderly who had no complaint of hearing/or self-perceived normal hearing were included in group I.
4. Elderly using detachable hearing aid of any type, i.e. analog or digital constituted Group II.
5. Evidence of impaired hearing with PTA (Pure Tone Average) record (Group III).

Exclusion Criteria

1. Elderly with hearing problems other than hard of hearing were excluded.
2. Significant self-reported history of neurological diseases (e.g. strokes, Parkinson's disease) and major cardiovascular problems.
3. Participants with internal implant of hearing aid (permanent) were avoided.

Tools

For screening the hearing loss and its impact on the QOL of elderly, HHIE (Hearing Handicap Inventory for the Elderly) by Ventry and Weinstein (1982) was used. HHIE was translated in Hindi language. This self assessment tool is designed to assess and to find out the effects of hearing impairment on the emotional and social adjustment of elderly people. This inventory is comprised of two subscales a 13 item subscale to be responded in "yes", 'sometimes", or "no", explores the emotional consequences of hearing impairment; a 12 item subscale explores both social and situational effects. A response of "yes" is given four scores, "sometimes" – two scores and

"no" – zero score. The overall scores in HHIE range from zero to hundred (0–100). The score ranges from 0–16 indicate "no handicap", 17–42 indicates mild to moderate handicap and = 43 indicates significant handicap. HHIE has significant audiometric correlates (Jupiter, 1982; Lichenstein, *et al.*, 1988). The reliability of HHIE is determined by assessing its internal consistency, chronbach's alpha ranges from 0.88 (social and situational subscale) to 0.95 for the entire inventory. It has strong support for construct validity.

Audiometer Alps Audiometer, New Delhi India was Used for PTA Recording Procedure

For assessing the hearing impairment and its impact on QOL of elderly, first of all permission was sought from the Head of ENT Dept. of PGIMS, Rohtak and also from physicians of private clinics of Rohtak city. The Pure Tone Average (PTA) recording of each hearing impaired elderly was done by audiometrist and was noted down. The Hindi version of HHIE was used. After giving the instructions, the old people responded in one of the three categories such as "yes", "sometimes" and "no". Similarly elderly using machine were contacted in the hospital or private clinics as well as in their respective home also. Similarly elderly with (self perceived) normal hearing were contacted in their homes and filled the inventory. Scoring was done as per norms.

Results & Discussion

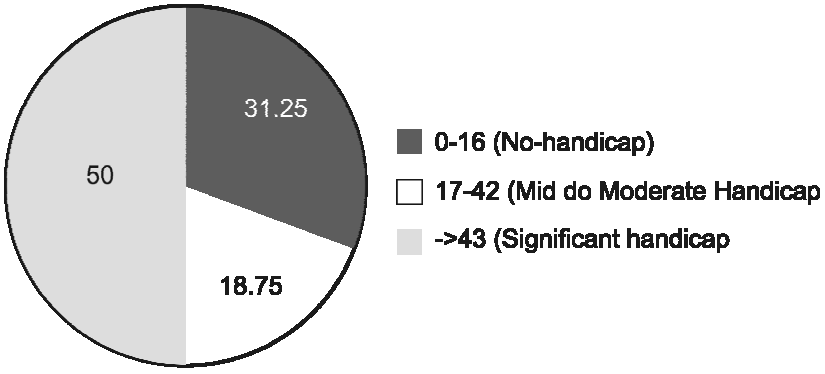
The distribution and level of hearing impairment in geriatric population is shown below.

Table 1
Scores Obtained on HHIE (% of elderly)

Range of Scores	*% of Elderly*	*Interpretation*
0–16	31.25	No handicap
17–42	18.75	Mild to moderate handicap
=43	50.00	Significant handicap

The majority of the elderly, approximately 70 per cent are hearing impaired. Only one third are found to be having normal hearing at the age of 60 and above, as is shown in below spectrum.

Figure 1
Per cent of Hearing Impaired Elderly

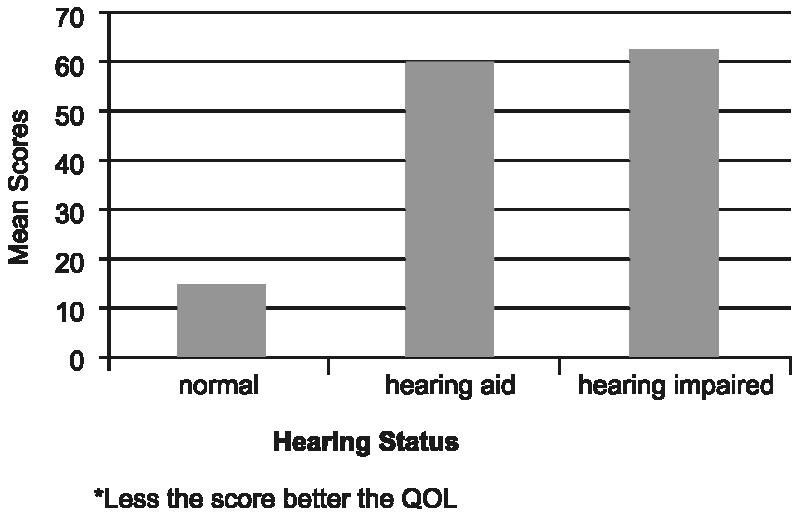


Further the quality of life of subjects (%) in three groups is depicted in Table 2

Table 2
Quality of Life (QOL) of Subjects (%) in Three Groups

Group	*Mean Scores Obtained on HHIE & Its Interpretation*	*No Handicap (%age of Ss)*	*Mild to Moderate Handicap (%age of Ss)*	*Significant Handicap (%of Ss)*
Normal Hearing (Group-I) n=47	15.19 (No handicap)	76.60	10.00	13.40
Using Hearing Aid (Group-II) n=39	59.44 (Significant handicap)	5.13	25.64	69.23
Hearing Impaired (Deaf Group III) n=34	62.71 (Significant handicap)	0.00 (Nil)	23.53	76.47

Figure 2
Mean Scores Obtained by Elderly



The mean scores obtained on HHIE by the various groups as shown in Figure 2 clearly reveal that the quality of life is adversely affected by the loss of hearing. The use of hearing aid appears to be ineffective. Further the appraisal of Table 2, clearly reveals the latent fact of denying openly of hearing loss by the group of normal hearing (Group-I). Actually approximately 23 per cent elderly are suffering from either mild to moderate (10.00%) or severe hearing loss (13.40%) as assessed by using HHIE. Such elderly are in need of hearing aid not only for their proper hearing but also for enhancing their sense of well being (Garstieki, D.C. 1987). Surprisingly a sufficient percentage of elderly are found to be severely handicap (69.23%) even after using the hearing aid only a small number of elderly (5.13%) are found to be benefited by the use of hearing aid while the quality of life of cent per cent deaf is found to be severely affected due to their hearing loss. The current findings highlight that elderly with normal hearing have better QOL as compared to those of either using hearing aid or with impaired hearing.

HHIE seems to be a valid tool for identifying the hearing loss in elderly as there exists a significant correlation between the scores obtained on HHIE and recording of PTA ($r = .5271$, $p < .01$).

The present findings are consistent with those of Jupiter, 1982; Ventry and Weinstein, 1983; Lichenstein, *et al.*, 1988b; Fino, *et al.*, 1989; Jupiter and Distasco , 1998. It further divulges the fact that the HHIE can reasonably be used as a substitute for pure-tone screenings in certain situations where either pure-tone screen is not available or elderly are homebound.

In order to find out the significant differences in QOL among various groups ANOVA was employed.

Table 3
Differences in QOL of Normal, Using Hearing Aid and Hearing Impaired Elderly
ANOVA

	Sum of Squares	*df*	*Mean Square*	*F*
Between	60,083.94	2	30,041.97	
Within Groups	61,955.93	117	529.5378	56.73244**
Total	1,22,039.9	119		

** $p < .01$

The highly significant value of F indicates the statistical significant difference in QOL among three groups. Further t-tests were employed to find out the significant differences between groups.

Table 4
Difference in QOL between Different Groups

Hearing Status (Gr)	*df*	*t-value*
Normal Hearing (Gr-I) using Hearing aid (Gr-II)	84	8.619**
Normal Hearing (Gr-I) Hearing impaired (Gr-III)	79	10.1**
Using hearing aid (Gr-II) Hearing impaired (Gr-III)	71	.571 NS

** $p < .01$

NS- Not Significant

The above table apparently suggests that both elderly with impaired hearing/using aid have poor quality of life as compared to those of normal hearing. It further points out that the elderly using hearing aid don't seem to be benefited with the aid, highlighting the fact that machine can't serve as an adequate substitute for natural normal hearing power. The present findings are in line with the earlier conclusions of Hickson, and Worrall, *et al.*, (1997).

Subsequently analyzing the overall scores obtained on HHIE, the subscale-wise obtained scores were also evaluated and depicted in Table 5.

Table 5

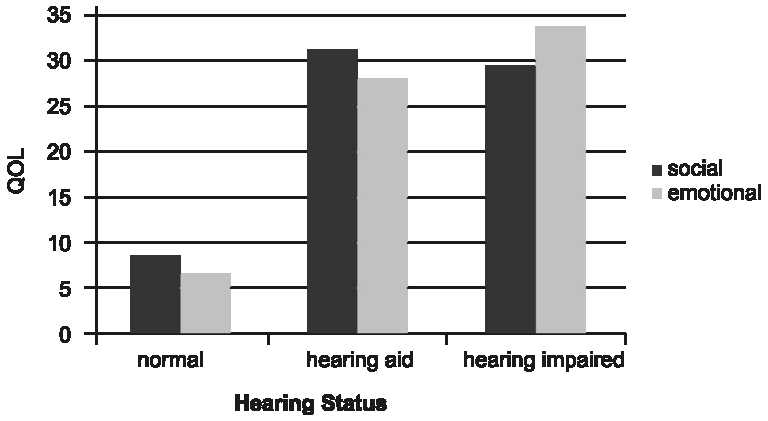
Mean and SD Scores on Social and Emotional Sub-cale Hearing Status

Sub-Scale	*Normal hearing (Gr–1) Mean (SD)*	*Using hearing aid (Gr-II) Mean (SD)*	*Hearing impaired (Gr-III) Mean (SD)*
Social	8.6(10.48)	31.33(13.34)	29.41(9.55)
Emotional	6.6(11.00)	28.10(14.90)	33.29(13.25)

The elderly with normal hearing have perfect social and emotional life. But the life of hearing impaired and using hearing aid elderly is seriously hampered in both of these dimensions. The maximum negative effect on social life is seen to be in the case of elderly using hearing aid which indicates that the use of machine is not beneficial to the elderly which may be due to the complex functioning of the machine which has to be adjusted while going at different environment with different sound levels.

Another reason may be that they feel stigmatized while going outside with machine consequently restricted their meeting with other people, hence resulting in poor social life. On the other hand hearing impaired (deaf) elderly also reported their restricted participation in family and outside affairs which gradually leads to withdrawal and isolation from social situations. The present findings are in consonance with those of Hickson and Worran (1997); Morgan, (2002); Dalton, (2003); Chia, (2007). Inspite of social life, emotional life is also adversely affected by hearing loss in both users and nonusers of

Figure 3
QOL of Elderly in Social and Emotional Subscale



machines. Both groups showed emotional instability, irritability, tenseness, frustration and embarrassment. The present results are in congruence with those of Meadow, (1985); Weinstein and Ventry (1980); Beattie (1981); Sangster, (1991); Kricos, (1995); Davis, (1995); who suggested the modification or replacement of hearing devices. On the contrary there are numerous studies emphasizing the improvement of QOL after using hearing aid Bridges and Bentles, (1998); Yones, (2009). Thus, on the basis of above findings it can be concluded that psychosocial well-being of the elderly is seriously affected by impaired hearing. These findings highlight the need for improving hearing aids.

In the current study demographic variables such as gender and background were also explored as shown in Table 6.

Table 6
Impact of Gender and Background on the QOL of Hearing Impaired Elderly

	Gender		*Background (Rural vs. Urban Areas)*	
	Male	*Female*	*Rural*	*Urban*
Mean	40.09	45.17	52.30	38.40
t-value	.728 NS		2.281*	

* $p < .05$

In the present study both male and female elderly are found to be equally adversely affected by impaired hearing. While giving situation or background has a significant severe adverse effect on the QOL of rural elderly than urban.

From the findings of the current study it may be inferred that HHIE is a valid tool for assessing hearing impairment. Hearing loss negatively affects the quality of life of elderly. The use of hearing aid also proves to be ineffective in improving the QOL of elderly. Further it may be stated that rural elderly are more affected than urban, while both male and female elderly are equally adversely affected by hearing loss.

The findings of the present study emphasize the strong need of convincing the elderly to use refined aid, if they refuse to use them then by using adaptive techniques as given below for community interventions and improving the QOL of hearing impaired elderly should be focused.

- The health care provider or family members should get the person's attention before speaking.
- Remove obstacles in front of the face.
- Speak clearly and at a moderate pace.
- Use facial expressions and gestures.
- Give clues when changing the subject.
- Repeat a sentence when not understood.
- Don't assume that the person can lip read.
- Don't shout and avoid noisy background situation.
- Be patient, positive and relaxed.
- Try to reduce social isolation and help in developing social network and acquiring a sense of belongingness.
- Boost self confidence, self empowerment and self esteem while giving them assertiveness training.

Suggestions

The current findings endorse some suggestions that those who are using hearing aids should be careful about the proper maintenance,

functioning and change of the battery of their machines and well refined machines to be used. Audiologic rehabilitation centers for senior citizens should be established in most of the cities of India and elderly people should be made aware about the benefits of such a centre, which will no doubt, enhance their quality of life. Further it is advised to the audiologists who fit hearing aids must implement aural rehabilitation as a part of their patient's plan of care to help ensure that individuals who seek hearing service should be treated in a holistic evidence – based manner that takes their psychosocial, physical and communication needs into consideration. Such findings may encourage better funding for hearing aids and as well as for better aural rehabilitation services.

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Psychosocial Impact of The Uttarakhand Flood Disaster on Elderly Survivors

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ABSTRACT

Elderly people are considered to be a marginalized population, due to their failing health, lack of gainful employment and their dependence on others for financial and other requirements. The difficulties faced by the elderly during disasters like Tsunami and earthquakes have been documented by various researchers. The aim of present study was to understand the psychosocial impact of the Uttarakhand flood disaster on the elderly survivors, during the initial 3 months following the event. The sample consisted of the elderly aged above 60 years (n=62) who were affected by the disaster, from four districts of Uttarakhand. The sample were screened for medical and psychiatric morbidity and also assessed across various domains of psychosocial aspects, such as loss of livelihood, property, as well as psychological symptoms like disturbed sleep, avoidance of reminders of the disaster, feeling of restlessness, and vague bodily complaints, amongst others. The

findings revealed a greater propensity of physical illness as well as psychosocial impact through loss of property and livelihood, along with psychological impact like disturbances in sleep, recurrent flashbacks and concern about the future. The findings have been discussed in the light of the current disaster situation in the state.

Keywords: Elderly, flood, disaster, psychosocial, Uttarakhand.

Natural disasters are catastrophes which occur without any warning and result in considerable destruction, of varying intensity and type (Kundzewicz, 2008). Every disaster results in certain physical and psychosocial consequences, which may range from loss of life, livelihood, or property, to long-standing issues like poverty, unemployment, and lack of basic resources. No one who sees a disaster is left untouched by it, and the scars left behind-both physically as well as psychologically-can often be deep-seated and perverse (Lindell, 2013).

Emotional responses to disasters may differ markedly among various groups of people. The psychological consequences of any disaster are fairly marked, and may range from fear, anxiety, anger and irritability to depression, shame or guilt (WHO, 1992). Sometimes the symptoms can include recurrent flashbacks about the event, intrusive memories and restlessness. Emotions like sadness, grief, anger, shame are understood as normal reactions to an abnormal event (Pan American Health Organisation, 2012). In majority of people, these symptoms do resolve after some time. In some, however, the symptoms continue or exacerbate, and may require professional help.

June 2013 saw one of the worst disasters in the history of Northern India, described by many as the 'Himalayan Tsunami' (Pragya, 2013). The Uttarakhand flood disaster proved to be one of the most powerful ones, wrecking extensive damage which resulted in widespread loss of lives, property and resources. Though climatic aberrations are commonly reported in Uttarakhand during the months of July-September, it is speculated that the early arrival of the monsoon bursts, along with the increasing pilgrim crowds during the peak season had increased the propensity of the disaster manifold (NDMA, 2011). The state is home to many centers of Hindu and Sikh pilgrimage as well as tourist spots and a majority of the inhabitants of

this land thrive on their earnings during the pilgrim and tourist seasons which peak during the month of June. Apart from the local inhabitants, many pilgrims and tourists were thus affected by the disaster, rendering thousands homeless and stranded with meagre savings. The districts of Chamoli, Uttarkashi, Rudraprayag and Pithoragarh were the worst hit by the floods (Pragya, 2013). The cloudbursts over the state resulted in multiple landslides and sudden floods, and resultant loss of human life, destruction of public property like buildings, bridges and roads, as well as private sources like fields, cattle, houses. Many villages could no longer be accessed due to the difficult terrain and continuing landslides, and people of these villages who were deprived of emergency care were air-lifted to common grounds. Rescue services were immediately organised by the Indian Army and the Air Force. Emergency evacuation and medical camps were also organised by many other governmental and non-governmental organisations, like teams from the National Disaster Management Association (NDMA), Medical Relief Camp, Help Age India and Rotary Club. Though restorative services had been initiated, delivery of services was repeatedly hampered by the continuing landslides and rains.

Along with special populations like the women, children, and disabled, the elderly are particularly recognised as a group which requires special care and attention during times of disaster. This is because the older adults generally face difficulties regarding physical mobility, diminished sensory awareness, chronic health conditions, and social and economic limitations that prevent adequate preparation and hinder adaptability during disasters (Fernandez *et al.*, 2002). Also, older adults are more prone to medical conditions which may exacerbate following a disaster due to lack of hygienic living conditions, food and water, climatic variations like extreme heat or cold, stress and exposure to infection (Menotti, 2001; Mudur, 2005). Lack of facilities for emergency care and non-availability of regular medications are also contributory to worsening of chronic illnesses that the elderly adult may be suffering from (Aldrich & Benson, 2008).

The after-effects of the Uttarakhand flood disaster still remain, with restorative services still continuing after months of the occurrence. It is imperative to understand the psychosocial aspects of the

affected elderly group, and the impact of the disaster on them. The people in some of the districts that are in the higher altitude usually used to landslides and floods of lesser intensity, compared to what happened in the June 2013. It is generally believed that being exposed to similar incidences of milder intensity might cushion the impact of the disaster on people. Given this, it will be useful to understand how the greater magnitude of the event has impacted the senior citizens. In this context, we attempt to understand the psychosocial impact of the Uttarakhand flood disaster on the elderly survivors.

Methods

The study sample was selected from the people who were screened at various sites of the four affected districts of Uttarakhand, namely Rudraprayag, Chamoli, Uttarakashi and Pithoragarh. This population consisted of all those who had availed Psychosocial Support – Mental Health Services (PSS-MHS) from teams from the National Institute of Mental Health and Neuro Sciences (NIMHANS), who were deployed as a part of the National Disaster Management Authority (NDMA), India, as NIMHANS is the nodal agency under the NDMA to disseminate Disaster Management support throughout the country.

At each of these sites, teams comprising of a psychiatrist, a clinical psychologist and a psychiatric social worker were available to provide PSS-MHS. All members were professionals trained to provide psychosocial health care and support for the affected population. The data was collected from the primary health care centers (PHCs), schools, community and from temporary shelter camps. Wherever possible, the village head was contacted prior to the date of visit and information regarding the services available from the PSS-MHS team were provided beforehand to encourage maximum participation.

Out of 825 who were screened by the PSS-MHS team, the sample for the current study consisted of 62 elderly (age 60 years and above), comprising 7.52 per cent of the whole population. The socio demographic details of the sample are described in Table 1. The data obtained from the elderly has also been contrasted against the adult sample of age 20–60 years (n = 498) to compare physical and psychiatric morbidity.

The sample was assessed across various parameters. They were initially screened by the psychiatrist for risk or presence of physical and psychiatric morbidity, in accordance with the International Classification of Mental and Behavioural Disorders (ICD–10; WHO, 1992). Following this, the impact of the disaster was assessed across various psychosocial domains, by the clinical psychologist and the psychiatric social worker. An individualised semi-structured interview method was utilised to collect the information. Wherever applicable, the interview was extended to provide necessary psychological intervention to the affected. Due to constraints of time and resources, most interviews were conducted on a single contact basis and intervention was restricted to brief counselling.

Statistical Analysis

A statistical analysis of the data was done using SPSS 14.0. Descriptive statistics were utilised to describe the socio-demographic profile. Wherever relevant, the data has been described further.

Results

Table 1 describes the socio-demographic aspects of the sample. The sample (n=62) consisted of 36 males (58.06%) at or above the age of 60 years. Of these 62, 7 (11.29%) were aged 75 years and above. The mean age of the sample was 65.37 years.

Table 1
Socio-demographic Details of the Sample (n=62)

Domain		*Frequency (n %)*
	n	*62*
Age(years)	60–75	55 (88.71)
	Above 75	7 (11.29)
Gender	Male	36 (58.06)
	Female	26 (41.94)

Physical Morbidity

The sample was screened for presence of physical conditions. Apart from already existing conditions like diabetes, hypertension, cataract, respiratory tract illnesses and arthritis, only one subject

presented with a fracture subsequent to the disaster. Most of the existing physical complaints had undergone exacerbations following the disaster. On the whole, 25 (40.32%) presented with various physical conditions, including gastroenteritis, dermatological infections, upper respiratory tract infections, urinary tract infections, ophthalmologic infections, pregnancy, anemias, diabetes, hypertension, haemorrhoids, lower respiratory tract infections, epistaxis, lower back aches, rhinitis, gastritis, otitis media, and viral fever, etc.

Psychiatric Morbidity

When assessed for psychiatric morbidity, 10 subjects (16.13%) presented with various psychiatric conditions meriting Axis I diagnoses. The consumption of psychoactive substances was rampant, though only 2 subjects (3.23%) each merited an Axis I diagnosis of Alcohol Dependence and Nicotine dependence. Data regarding use of other psychoactive substances was not available. Similarly, 3 subjects (4.84%) qualified for a diagnosis of Dysthymia, while 1 subject (1.61%) each presented with Depressive Disorder, Migraine and Somatoform Disorder meriting an Axis I diagnosis (Table 2).

Table 2
Physical and Psychiatric Morbidity among the Elderly Survivors of the Uttarakhand Disaster (n=62)

S. No	*Diagnosis*	*n (%)*
1.	Physical conditions*	25 (40.32)
2.	Alcohol Dependence Syndrome	02 (3.23)
3.	Nicotine Dependence Syndrome	02 (3.23)
4.	Dysthymia	03 (4.84)
5.	Somatoform Disorder	01 (1.61)
6.	Migraine	01 (1.61)
7.	Depressive Disorder	01 (1.61)

* Includes gastroenteritis, dermatological infections, upper respiratory tract infections, urinary tract infections, ophthalmologic infections, anemias, diabetes, hypertension, haemorrhoids, lower respiratory tract infections, epistaxis, lower back aches, rhinitis, gastritis, otitis media, viral fever.

Psychological and Psychosocial Impact

Table 3 describes the psychosocial and psychological impact of the Uttarakhand flood disaster on the elderly survivors.

Socio-economic difficulties like loss of property, loss of livelihood and loss of records and relevant documentation as a result of the floods, were relatively high at 38.70 per cent, 35.48 per cent and 19.35 per cent respectively. An analysis of the psychological impact of the disaster revealed that at least 16.13 per cent of the sample experienced recurrent flashbacks following the disaster and mostly had difficulty in maintaining sleep (14.52%). At least 12.90 per cent found themselves thinking about the disaster and its recurrence even when they did not want to, and experienced intrusive memories regarding the same. At least 6.45 per cent experienced a loss of their sense of safety and security following the disaster, and many contemplated relocating to other relatively safer parts of the state. At least 20.97 per cent experienced restlessness and increased physiological arousal, contingent with any stimuli associated with the disaster, while 1.61 per cent experienced increased irritability and anger at minor instances. At least 3.22 per cent of them experienced vague bodily complaints non-attributable to any specific reason, following the occurrence of the disaster and significant worry regarding the future. At least 19.35 per cent attempt to avoid reminders of the disaster.

Table 3

Psychosocial and Psychological Impact of the Uttarakhand Flood Disaster on Elderly Survivors (n=62).

S. No.	*Domain*	*n (%)*
1.	Loss of property	24 (38.70)
2.	Loss of livelihood	22 (35.48)
3.	Loss of records (documentation)	12 (19.35)
4.	Feelings of restlessness	13 (20.97)
5.	Trying to stay away from remainders	12 (19.35)
6.	Flashbacks of the events	10 (16.13)
7.	Disturbed sleep	09 (14.52)
8.	Thinking about it in spite of not willing to	08 (12.90)
9.	Lack of privacy	07 (11.29)
10.	Feelings of Loss of safety & security	04 (6.45)
11.	Worries about the future	02 (3.22)
12.	Vague bodily complaints	02 (3.22)
13.	Irritability and anger	01 (1.61)

As mentioned earlier, the data obtained from the geriatric sample was contrasted against the adult sample, and compared using percentage of prevalence in each category. The adult sample (n = 498) was in the age range of 20–60 years, with mean age of 35.5 years.

The adult sample consisted of 193 males (38.76%). When compared on physical and psychiatric morbidity, the geriatric group evidenced greater prevalence of physical morbidity (40.32%) as compared to adults (15.26%). The prevalence of overall psychiatric morbidity was greater in the adult sample (19.08%) when compared to the elderly (10.13%). The elderly evidenced greater prevalence of alcohol and nicotine dependence (3.23%), dysthymia (4.84%) and somatoform disorder (1.61%) in comparison with the adult sample, and lower prevalence of psychiatric morbidity across other Axis I criteria, as described in Table 4 below.

Table 4

Physical and Psychiatric Morbidity Among the Adult Survivors of the Uttarakhand Disaster (n=498) in Comparison with the Elderly Survivors (n=62).

S. No.	*Diagnosis*	*n=62 (%)*	*n=498 (%)*
1.	Physical conditions*	25 (40.32)	76 (15.26)
2.	Alcohol Dependence Syndrome	02 (3.23)	05 (1.00)
3.	Nicotine Dependence Syndrome	02 (3.23)	02 (0.40)
4.	Dysthymia	03 (4.84)	15 (3.01)
5.	Depressive Disorder (Mild, Moderate, Severe)	01 (1.61)	29 (5.82)
6.	Schizophrenia (includes Psychosis NOS)	—	07 (1.41)
7.	Bipolar Affective Disorder	—	05 (1.00)
8.	Generalised Anxiety Disorder (includes Anxiety Disorder NOS & Mixed Anxiety Depression Disorder)	—	04 (0.80)
9.	Panic Disorder	—	04 (0.80)
10.	Post Traumatic Stress Disorder	—	02 (0.40)
11.	Migraine	01 (1.61)	04 (0.80)
12.	Adjustment Disorder	—	09 (1.81)
13.	Grief Reaction	—	03 (0.60)
14.	Obsessive Compulsive Disorder	—	01 (0.20)
15.	Dissociative Disorder	—	01 (0.20)
16.	Somatoform Disorder	01 (1.61)	04 (0.80)

* Includes gastroenteritis, dermatological infections, upper respiratory tract infections, urinary tract infections, ophthalmologic infections, anemias, diabetes, hypertension, haemorrhoids, lower respiratory tract infections, epistaxis, lower back aches, rhinitis, gastritis, otitis media, viral fever.

Discussion

The currently study focussed on the geriatric survivors of the Uttarakhand flood disaster and attempted to describe the psychosocial impact of the disaster on them. Majority of the geriatrics addressed were male, and were contacted through primary health centers, medical camps and temporary shelter camps. The sample consisted of only those elderly who had contacted PSS-MHS services through various multi-disciplinary teams allocated by NIMHANS, Bangalore.

Exacerbation in various existing physical illnesses following the disaster experience was evident from the sample. Many of the elderly were on regular medications for certain health conditions like hypertension and diabetes, and the non-availability of immediate medical care was a concern. This corroborates earlier findings regarding elderly survivors of disasters (Cornell, 2012). Also, deteriorating nutritional levels and unhygienic living conditions currently contributed to various infectious diseases too. The difficulty in commuting long distances and accessibility to roads made it difficult for them to access existing healthcare services and emergency aid. Allocation of resources on priority-basis for medical and mental health of the elderly survivors would help to reduce disaster-related morbidity (Viswanath *et al.*, 2012).

The survivors were initially reluctant to talk about psychological issues that may have resulted from the disaster. The lack of awareness regarding mental health care needs was evident. The elderly found it easier to describe their physical health conditions rather than mental state, and were more sensitive to changes in bodily states and the need for medical attention. Also, in the aftermath of the continuing disaster, labelling them under any of the Axis I diagnoses was not considered important, except where highly relevant. Physical conditions like gastroenteritis, dermatological infections, respiratory tract infections, ophthalmologic infections, diabetes, hypertension, and lower back aches were commonly described by most elderly. Depressive symptoms and symptoms pertaining to migraine headaches were also described by some, demanding a diagnosis. On the other hand, many survivors could relate to and describe non-pervasive

symptoms of anhedonia, somatic complaints, disturbed biological rhythms, low mood or physiological arousal, without consequential socio-occupational dysfunction. These symptom dimensions were considered in relation with the disaster, and only a review of the symptomatology at a later point of time would reveal whether it merits a clinical label. Similarly, most people had easy access to psychoactive substances, including chewable tobacco and related products marijuana and cocaine. Usage, reportedly indiscriminate, of these substances was also prevalent as culturally-sanctioned behaviour, but this could not be quantified due to lack of substantial data.

A percentage-wise comparison of the physical and psychiatric morbidity among the elderly and the adult survivors showed certain contrasts. The elderly sample had a good number of male and female survivors looking for services. In the adult sample, there were more females than males, which supports existing trends towards greater help seeking behaviour among adult women than men (Oliver *et al.*, 2005). On the whole, the prevalence of psychiatric morbidity was greater in the adult sample than the elderly. Yet, the geriatric group showed greater prevalence of Alcohol and Nicotine Dependence, Dysthymia, Somatoform Disorder and Migraine, in comparison with the adult sample. The prevalence of psychiatric morbidity among the elderly is less than the nationwide prevalence recorded in earlier epidemiological studies (Chowdhury & Rasania, 2007; Kamble *et al.*, 2012; Tiwari *et al.,* 2013). Whether this is attributable to states of positive mental health and resilience, is a question which requires further probe.

The state of Uttarakhand is an economically upcoming one, with majority of the population being self employed, in agriculture, tourism and upcoming industries (Bisht, 2013). The sudden occurrence of the disaster, and lack of preparedness to deal with the emergency are understood to have contributed to the intensification of the damage caused by the disaster. The resultant loss of lives remained unaccounted, along with massive loss of public and private property, records and livelihood. Many survivors described how they were required to move out of their homes at short notice, and having to leave behind whatever little savings and valuables they had. Those

staying at the banks of the Ganges in certain villages had been notified of the possible calamity, and some had made makeshift arrangements or moved higher up the hills. But the subsequent landslides and damaged roads had caused havoc and cut them away from existing connectivity with the neighbouring villages as well as emergency supplies. People describe how they had watched buildings, temples and vehicles being washed away, and trees being uprooted. Many reported seeing their own fields, agricultural produce of months of toil, and cattle and livestock being washed away by the floods. Many elderly also reported their difficulty in accessing healthcare services and legal benefits, as necessary medication, records and documents had been destroyed or washed away when the flood waters inundated their living rooms. Most elderly having their children staying in other parts of the state are concerned about their safety too, as the means of commuting or communicating with them are currently restricted.

Many describe difficulty in sleeping at night, and how the sound of the rushing river, which before the disaster was their source of solace and bounty, currently raises fear in their minds. They narrate how they spend sleepless nights, and occasionally peer out through their windows to reassure themselves that the water levels are not suddenly rising again. One survivor described how even a light drizzle increased their heartbeats and they are constantly wary about emergencies that may suddenly come up. Some survivors described how they have begun to keep a small pouch containing necessary medicines and a little money under their pillows, so that in case of emergencies at night, they would not be caught unaware and could save themselves. Flashbacks regarding the disaster are common and they prefer not to talk about the disaster, lest it leaves them with more reminders. Concern about the future are imminent, due to their old age and limited resources and many survivors experienced a loss of sense of safety and security. Many reported that being prepared for unforeseen moves helped to temporarily alleviate their worries, akin to reports in existing literature (Oriol, 1999).

Emotional outbreaks though are reported as minimal; most survivors took the disaster as an event which needs to be overcome. They were unsure of the causes, but were aware of the need to rebuild

whatever is lost, including hope for the future. The emphasis placed on spirituality in their daily lives seems to have contributed heavily to their resilience, and provides hope for faster recovery. As one survivor described with a smile, "The Ganga is our Mother; She provides us with everything ... and She is free to take back everything whenever She considers appropriate".

Limitations

The current study focused on understanding the psychosocial impact of the disaster on the elderly, based on their descriptive reports. While providing a descriptive status of the findings, certain methodological limitations may prevail thus. Similarly, the study is based on data collected from the survivors only on a single-contact basis. Further contact could have proved helpful in understanding their physical and psychological status better.

Conclusion

The Uttarakhand disaster has been a major occurrence in the country, and the losses incurred are significant compared to earlier times when disaster had struck the state. The elderly survivors of the disaster have experienced loss in various forms, be it material or psychological. Old age, mobility, chronically deteriorating health and lack of proper resources are current concerns that need to be addressed. The findings corroborate earlier studies on disaster mental health services in general as well as among the elderly (Hagen, 2006; Gibson, 2007). Lack of adequate disaster preparedness and facilities for medical and psychiatric care is imminent. Though efforts are ongoing for rehabilitation, availability of further resources and effective utilization of healthcare and legal systems will necessarily accentuate the current efforts.

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Psychological Well Being and Marital Adjustment: A Study on Elderly Couples in Post Parental Stage of Life

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ABSTRACT

The aim of this study was to understand the psychological wellbeing and marital satisfaction of the elderly couples in the post parenting stage of life. 30 elderly couples (30 males and 30 females) were selected by Snowball sampling technique from Kottayam City in Kerala The study comprised elderly people above the age of 60 years experiencing post parenting stage of life. The study excluded the institutionalized couples, individuals with mental sickness and couple with one partner or both who were chronically ill. Self administered interview schedule was used to collect data regarding their socio-demographic profile. Ryff's Psychological well being scale (1989) was used to assess the psychological well being and Marital Satisfaction Questionnaire for Older Persons was used to collect data regarding marital satisfaction. Data was collected directly from the couples by face to face interviews. Data was analyzed using SPSS software. It was found that t only 40 per cent of them were engaged as member of social clubs or organisation. Lesser the age the greater the marital adjustment perceived among the individuals in empty nest stage of life. Among higher education groups, the marital adjustment was reported to be better among elderly couples in the post parental stages of life. As age decreases psychological wellbeing increases and as age increases psychological

wellbeing decreases among elderly couples in the post parental stages of life. As the psychological wellbeing increases the ratings on marital adjustment too increases and vice versa among elderly couples in the post parental stages of life.

Key Words: Marital relationship, Marital adjustment, Psychological wellbeing, Elders, Empty Nest Syndrome, Post Parental Stages of life.

Post Parental Stage of Life

The post parental stage is the period in parents after their last child leaves home. The post parenting is an emotionally neutral term given to the period when parenting is no longer the major role of the parents. Children have grown to young adulthood and have been sent off into the world. The household has physically shrunk from several to two husband and wife or one, in the case of the single parent. This post parenting period normally lasts from the time the last child leaves home until the deaths of the parents. The reasons of the child leaving the home may be in variety and preferably entering into an independent adult world.

During this important phase in life, the elderly individual or couple experiences a different set of circumstances coupled with some of the more common struggles for elderly parents entering the empty nest stage of life. Some of the challenges experienced by them are change in roles or loss of roles, marital disharmony, career challenge, shifts in care giving, physical challenge and passion for relationship with children. This period is greatly influenced by the empty nest syndrome.

The empty nest syndrome is clinically defined as the 'temporal association of clinical depression with the cessation of child rearing'. It also has been defined as the 'sense of loss when grown children leave home'. Also associated with the term is the notion of a 'profound inability of the parent to cope'. Empty nest syndrome refers to the clinical depression that accompanies the cessation of child rearing and therefore, is an emotionally charged term. The situation worsens among parents as they enter the elderly stage in life.

Statement of the Problem

The post parental period among the elders is associated with many issues affecting their marital adjustment and mental well being. Marital adjustment is 'the state in which there is an overall feeling in husband and wife of happiness and satisfaction with their marriage and with each other'. Marital adjustment calls for maturity that accepts and understands growth and development in the spouse. If this growth is not experienced and realized fully, death in marital relationship is inevitable. Elderly parents face new adjustments as disequilibrium is created by a child's absence. The empty nest syndrome states that marital satisfaction will decrease because parents derive considerable satisfaction from their children and therefore the children's departure will leave parents with feelings of emptiness.

Mental well being is a state of emotional and psychological well being in which an individual is able to use productively his or her cognitive and emotional capabilities to function normally in society and to meet the ordinary demands of everyday life smoothly. The quality of family relationships is established in the early years of marriage, parenthood and carries over into the later years. Older people with healthy marriages and positive relationships with their children enjoy their family life in the later years. Gerson (1995) defines the family cycles as an unattached young adults, moving to coupling, then to expansion with the addition of children, and then to contraction where the children leave the home and begin their own family life cycle. Contraction begins as children enter adolescence and prepare to leave the family. Parents help the children with support so the children are confident in their newly expanded outside world while at the same time prepare themselves for their contracted new world. As couples move from the distractions of daily parenting to cycle when they have the time to focus on each other several outcomes could be expected out of the elderly parents.

The elderly who have strong family relationships often feel they can turn to family members for assistance when needed. As older people experience losses in life, such as the death of close friends or a spouse and changes in health or mobility, they may reach out to family for support. Time with family, help with chores and business and expressions of love become even more important as the elderly

adjust to major changes in their lives. Post parental life is characterized by the empty nest stage that point in the family cycle where children have grown and departed from the home. For the elderly couple, this means a time when they are alone and living in a house that is filled with memories of their children. For some parents, this becomes a time of reflection, restlessness, and even dissatisfaction. (Clay, 2003). Elders preferably the women undergoing the empty nest experience encounter complicated emotions such as feeling sad, feeling relived, wondering about oneself, loving children, dealing with missing someone, dealing with transition, coping with anxieties and denial, seeking supports, and feeling positive. The present paper attempts throw light upon the mental wellbeing and marital adjustment experienced by the elderly couples experiencing the empty nest syndrome or living in the post parenting period of life coupled with human ageing.

Aim of the Study

To study the psychological wellbeing and marital satisfaction of the elderly couples in the post parenting stage of life.

Specific Objectives

1. To understand the socio-demographic profile of the elderly couples in the post parenting stages of life.
2. To study the marital satisfaction and psychological well being of the couples.
3. To find the relationship between the psychological wellbeing and marital satisfaction of the couples.

Research Methodology

Sample

The universe of the study comprised elderly people above the age of 60 years experiencing post parenting stage of life in Kottayam City. A sample of 60 couples was included for the study. Snowball sampling technique in the non probability sampling method was used to contact the respondents and recruitment continued until saturation was reached.

Tools Used

This quantitative study is descriptive in nature.? Self administered interview schedule was used to collect data regarding their socio-demographic profile. Ryff's Psychological well being scale (1989) was used to assess the psychological well being and Marital Satisfaction Questionnaire for Older Persons? was used to collect data regarding marital satisfaction. The study excluded the institutionalized couples, individuals with mental sickness and couple with one partner or both who are chronically ill. Data was collected directly from the couples by face to face interviews. Data was analysed using SPSS software.

Results and Discussions

Educational qualification of the respondents is observed in this graph. Of the total respondents 28.3 per cent of the respondents were under graduates, 18.3 per cent were educated till high school, 16.7 per cent of the respondents were educated till higher secondary, 11.7 per cent of the respondents were educated till upper primary, 10 per cent of the respondents were post graduates, 8.3 per cent of the respondents were educated till diploma and 6.7 were of the respondents had primary education. Majority of the respondents (28.3%) were graduates.

It was found out that in the present sample 31.7 per cent of the respondents were not engaged into any work, while 26.7 per cent of them were government servants and 23.3 per cent of the respondents were engaged into private jobs. Only 16.7 per cent of the respondents were involved in business and a meagre 1.7 per cent of the respondents were engaged into agriculture. The data shows that little less than seventy per cent of the elders were occupied into some jobs probably that the male respondents were actively earning while it could be the female subjects who were not formally working. This may be due to the male dominated Indian society.

With respect to the number of children to the elders, it is reported by 53.3 per cent of the respondents had 2 children, 26.7 per cent of them had 3 children, 10 per cent of them had 1 child and 9.9 per cent of them had 4 children.

Regarding the elders participation in the activities of social clubs or organisations, it is reported that 40 per cent of them are engaged as

member of social clubs or organisation and remaining 60 per cent of them do not belong to any social clubs or organisation.

Religion	*Marital Adjustment*						
	Low		*Medium*		*High*		*Sig*
	N	*%*	*N*	*%*	*N*	*%*	
Christian	9	30.0	16	53.3	5	16.7	X2 = 3.992 df = 4
Hindu	4	28.6	8	57.1	2	14.3	P (.407) > 0.05
Muslim	2	12.5	8	50.0	6	37.5	Not Significant

This table indicates the association between religion and marital adjustment as reported by the respondents. The chi square test applied between the variables religion and marital adjustment shows that among the Christians, 53.3 per cent of the respondents had medium levels of marital adjustment while 30 per cent accounted for having low level of marital adjustment and only 16.7 per cent had higher level of marital adjustment. Among the Hindus, 57.1 per cent of the respondents had medium level of marital adjustment while 28.6 per cent accounted for having low level of marital adjustment and only 14.3 per cent had higher level of marital adjustment. Among the Muslims, 50 per cent of the respondents had medium level of marital adjustment while 37.5 per cent accounted for having high level of marital adjustment and only 12.5 per cent had low level of marital adjustment. However, the chi square value results reveal that p value is greater than the 0.05 level of significance. Hence there is no significant association found between the elders' religion and marital adjustment.

This table depicts the association between monthly income and marital adjustment as reported by the respondents. Among the respondents having monthly income less than INR 3,999, 66.7 per cent of them have medium levels of marital adjustment and 33.3 per cent accounted for low level of marital adjustment. Among the respondents having monthly income between INR 4,000–7,999, 100 per cent of the respondents have medium level of marital adjustment. Among the respondents having monthly income INR 8,000 and above, 50 per cent of the respondents have medium level of marital adjustment while 25

per cent accounted for high and low level of marital adjustment respectively. However, the chi square value reveals that there is no significant association between monthly income and their marital adjustment.

Monthly Income in INR	*Marital Adjustment*						*Sig*
	Low		*Medium*		*High*		
	N	*%*	*N*	*%*	*N*	*%*	
Less than Rs 3,999	2	33.3	4	66.7	0	0	X2 = 3.792 df = 4 P(.435) > 0.05
4,000–7,999	0	0	2	100.0	0	0	
8,000 and above	13	25.0	26	50.0	13	25.0	

This table indicates the association between elders' religion and their psychological wellbeing. Among the Christians, 63.3 per cent of the respondents have medium, while 20 per cent accounted for low and only 16.7 per cent have higher level of psychological wellbeing. Among the Hindus, 42.9 per cent of them have medium, while 35.7 per cent accounted for low and 21.4 per cent have higher level of psychological wellbeing. Among the Muslims, 81.3 per cent have medium while 12.5 per cent accounted for low and only 2.4 per cent have high level of psychological wellbeing. However, the chi square reveals that there is no significant association found between religion and mental wellbeing.

Religion	*Psychological Wellbeing*						*Significance Level*
	Low		*Medium*		*High*		
	N	*%*	*N*	*%*	*N*	*%*	
Christian	6	20.0	19	63.3	5	16.7	X2 = 4.930 df = 4 P(0.295) > 0.05
Hindu	5	35.7	6	42.9	3	21.4	
Muslim	2	12.5	13	81.3	1	2.4	

In this table the association between elders' monthly income and their psychological wellbeing can be observed. Among the respondents having monthly income less than INR 3,999, 83.3 per cent had medium, while 16.7 per cent accounted for low levels of psychological

wellbeing. Among those with monthly income between INR 4,000–7,999, 50 per cent of the respondents are equally distributed for medium and low levels of psychological wellbeing respectively. Among the respondents with monthly income INR 8,000 and above, 61.5 per cent of the respondents had medium while 21.2 per cent accounted for low and 17.3 per cent of them had higher level of psychological wellbeing. However, no significant association is found between monthly income and psychological wellbeing.

Monthly Income in INR	*Psychological Wellbeing*						
	Low		*Medium*		*High*		*Sig. level*
	N	*%*	*N*	*%*	*N*	*%*	*X2 = 2.663*
Less than 3,999	1	16.7	5	83.3	0	0	*df = 4*
4,000–7,999	1	50.0	1	50.0	0	0	*P (0.616) > 0.05*
8,000 and above	11	21.2	32	61.5	9	17.3	

The t-test results to understand the mean differences between elders' sex and their marital adjustment reveals that the mean value is slightly higher (105.37) among female respondents in empty nest stage of life, compared to the male respondents. However, the calculated t value is 0.472 and the p value is greater than 0.05. Hence, no significant difference in the rating of marital adjustment across their sex is found. This indicates that the male and female has no effect on marital adjustment among elderly couples in the post parental stages of life.

Marital adjustment	*Mean*	*S.D*	*df*	*t*	*Sig*
Male	103.20	17.987			
Female	105.37	17.547	58	0.472	0.821

The t-test highlights the mean differences in the ratings of psychological wellbeing across the sex groups. The mean value of psychological wellbeing in males is higher (165.33) compared to that of the female respondents in empty nest stage of life. The calculated t value is 0.884 and the p value (0.450) is greater than 0.05. Hence, no significant difference in their ratings of mental wellbeing across the two groups of subjects categorized on the basis of sex. This indicates

the male and female has no effect on psychological wellbeing among elderly couples in the post parental stages of life.

Psychological wellbeing	*Mean*	*S.D*	*Df*	*t*	*Sig*
Male	165.33	17.028			
Female	161.30	18.308	58	0.884	0.450

The present table highlights the differences between respondents' age groups and perceived marital adjustment. It is observed that the elders in the age group 61–65 year, has the highest mean score of 128, while 81–85 has mean score 110, age group 66–70 with the mean score of 109.83 and age group 76–80 obtained the mean score 103.56. This reveals that elders in the age group 61–65 years have better marital adjustment than those belong to other age groups. However, the calculated F value is 2.985 and the p value (0.027) is observed to be lesser than 0.05 level. Hence, statistically significant differences exist between elders' age group and their marital adjustment. This reveals that lesser the age the greater the marital adjustment perceived among the individuals in empty nest stage of life.

Marital adjustment	*Sum of squares*	*df*	*Group Means**	*F*	*Sig*
Between groups	3,278.427	4	G1= 128 G2= 109.83	2.985	0.027 Significant
Within groups	15,103.757	55	G3= 98.41 G4= 103.56 G5=110		

* Age groups: G1= 61–65 years, G2= 66–70 years, G3= 71–75 years, G4= 76–80 years, G5= 81–85 years

This table highlights the results of a One-way ANOVA to assess the differences between the scores of marital adjustment and elders' different educational qualifications. It is observed that the Group 7, Post Graduates had the highest mean score of 120.33 while Group 5 had a mean score of 115.20, Group 2 had a mean score of 107.29, Group 3 had a mean score of 106.55, Group 1 had the mean score of 101.50 and Group 4 had the mean score of 98.30. It shows that respondents belonging to the Group 7 Post Graduates had better marital adjustment than all other groups. The calculated F value is 2.137 and

the p value is lower than 0.01. Hence, statistically significant differences exist in marital adjustment ratings across the different educational groups. This reveals that among higher education groups, the marital adjustment was reported to be better among elderly couples in the post parental stages of life.

Marital adjustment	*Sum of squares*	*df*	*Mean**	*F*	*Sig*
Between groups	3,581.029	6	G1 = 101.50 G2 = 107.29 G3 = 106.55 G4 = 98.30 G5 = 115.20 G6 = 96.88 G7 = 120.33	2.137	0.002 Significant at 0.01
Within groups	1,4801.154	53			

* G1 = Primary school, G2 = Upper primary, G3 = High school, G4 = Higher secondary, G5 = Diploma, G6 = Undergraduates (UG), G7 = Postgraduates (PG).

Differences between marital adjustment and occupational categories of the elders' are observed in this table. It is observed from the table that the group 4, agriculture, had the highest mean score of 117, while group 3 had a mean score of 109.80, group 2 had a mean score of 105.21, group 1 had a mean score of 102.44, and Group 5 had a mean score of 101.58. It shows that respondents belonging to the Group 4 had the higher marital adjustment than those belong to other groups. The calculated F value is 0.521 and the p value is higher than 0.05. Hence, there doesn't exist any significant differences in marital adjustment ratings among the different occupational categories of subjects in this study. However, the mean scores indicate that the individuals in agricultural sector have greater marital adjustment and the individuals who did not work have lesser marital adjustment.

Marital adjustment	*Sum of squares*	*df*	*Mean**	*F*	*Sig*
Between groups	671.657	4	G1 = 102.44 G2 = 105.21 G3 = 109.80 G4 = 117.00 G5 = 101.58	0.521	0.720 Not Significant
Within groups	17,710.526	55			

* G1 = Government job, G2 = Private Job, G3 = Business, G4 = Agriculture, G5 = Not working

The One-way ANOVA calculated to understand the psychological wellbeing demonstrated by the respondents varies across the different age groups of the elders'. It is observed from the table that the Group 1 (61–65 years) had a mean score of 165.89, group 4 (76–80 year) had a mean score of 165.67, group 2 (66–70 years) had a mean score of 164.44 and Group 3 (71–75 years) had the mean score of 162. The calculated F value was 0.229 and the p value (0.921) is higher than 0.05. Hence, no significant differences in the scores of psychological wellbeing are observed among the different age groups, as rated by the subjects. However, the mean score values indicate the higher psychological wellbeing among those elders in the age group 61–65 years and lower among those in the age group 81–85 years. This reveals that as age decreases psychological wellbeing increases and as age increases psychological wellbeing decreases among elderly couples in the post parental stages of life.

Psychological wellbeing	*Sum of squares*	*df*	*Mean**	*F*	*Sig*
Between groups	300.983	3	G1 = 165.89 G2 = 164.44	0.229	0.921 Not Significant
Within groups	18,072.000	55	G3 = 162.00 G4 = 165.67 G5 = 151.00		

* G1 = 61–65 years, G2 = 66–70 years, G3 = 71–75 years, G4 = 76–80 years, G5 = 81–85 years.

The One-way ANOVA calculated to find the effects of education on psychological wellbeing of the elderly couples in the post parental stages of life. It is observed from the table that group 7 Postgraduates have the highest mean score of 188.33 and the group 1 primary school education has obtained the lowest mean score of 150. It shows that there are significant differences in the means of scores of psychological well being as rated by the elders belonging to the various educational groups. The calculated F value is 4.935 and the p value (0.000) is observed to be lower than 0.01. Hence, significant differences are seen between elders belonging to various educational groups and their psychological wellbeing. In short, educational variations affect the mental wellbeing. This reveals that as the education increases the psychological wellbeing too increases and as education decreases

psychological wellbeing too decreases among elderly couples in the post parental stages of life.

Psychological Wellbeing	*Sum of Squares*	*df*	*Mean**	*F*	*Sig*
Between groups	6,585.131	6	G1= 150.00 G2= 152.43	4.935	.000 Significant
Within groups	11,787.852	53	G3= 157.64 G4= 161.00 G5= 176.60 G6= 163.24 G7= 188.33		

* G1 = Primary school, G2 = Upper primary, G3 = High school, G4 = Higher secondary, G5 = Diploma, G6 = U.G, G7 = P.G

One-way ANOVA calculated to find variances between different occupations on their psychological wellbeing. It is inferred from the table that the Group 1, those employed with the government obtained the highest mean score of 169.19 while those engaged into private employment obtained mean score of 168.86, Group 4 had a mean score of 160, Group 3 had a mean score of 159.30 and Group 5 had a mean score of 156.58. It shows that respondents belonging to the Group 1 have better psychological wellbeing than those belonging to other groups. It is also seen that those who were not working have lower psychological wellbeing.

The calculated F value is 1.695 and the p value (0.164) is higher than 0.05. Hence, there does not exist any significant differences in the mean ratings of mental wellbeing across the different groups of subjects categorized on the basis of nature of their occupation.

Psychological Wellbeing	*Sum of squares*	*df*	*Mean**	*F*	*Sig*
Between groups	2,016.100	4	G1= 169.19	1.695	0.164 Not
Within groups	16,356.883	55	G2= 168.86 G3= 159.30 G4= 160.00 G5= 156.58		Significant

* G1 = Government job, G2 = Private Job, G3 = Business, G4 = Agriculture, G5 = Not working

The table above indicates the relationship between marital adjustment and psychological wellbeing. The scores of marital

adjustment and psychological wellbeing are put to test using the Karl Pearson's correlation coefficient test to find out their correlations. With regard to marital adjustment and psychological wellbeing, a correlation (r = 0.448, p = 0.01) was observed. The correlation is significant at the 0.01 level. Hence, there exists a moderately strong positive correlation or relationship between ratings of marital adjustment and that of psychological wellbeing. This implies that as the psychological wellbeing increases the ratings on marital adjustment too increases and vice versa among elderly couples in the post parental stages of life.

Dimensions	*Marital Adjustment*	*Psychological Wellbeing*
Marital Adjustment	1	
Mental Wellbeing	0.448, p = 0.01**	0.448, p = 0.01** 1

** Correlation is significant at the 0.01 level (2-tailed).

Social Work Interventions

In order to enhance better psychological wellbeing and marital adjustments among the elderly couples in the post parental stages of life, community based centres that provide safe, shared people to interact with each other, experience continuous socialisation, recreation, social clubs, and faith based activities can be introduced which can foster healthy relationships and positive psychological health in order to help prevent depression, suicide and to facilitate social connectedness and community engagement across the lifespan of the elderly couples in the post parental stages of life. The social workers can be ideal to manage these centres. In addition, engaging them in activities through social clubs, organizations, engaging in different therapeutic and health-promotion activities, providing mental health services through working with individuals and groups can be the major thrust of these centres.

Conclusion

This Study on psychological wellbeing and marital adjustment among couples in the post parental stages of life is that they are affected by factors such as the age, education, occupational status, number of children, retirement and so on. Similar factors such as autonomy, personal growth, environmental mastery, positive relation

with others, purpose in life, self acceptance, the expression of affection, communication skills, problem solving, their responses to the demanding and difficult factors, and the effect they have on them are very diverse. Empty nest stage of life is defined as the phase of life when the children are grown up, but no longer live at home. Although both men and women emotionally experience this transition, it has been considered uniquely stressful for women since it entails the loss of the major components of the mother role, a role which has traditionally been a central focus of many women's lives and identities. Empty nest phase is a period that promotes freedom and improved relationship, and also have a more mature, more emotionally meaningful and deeper relationship within themselves individually and martially to look forward to. Higher marital satisfaction and better marital adjustment may aid in a more successful and positive transition to the post parental period with higher psychological or mental well being. This can be also that better marital adjustment can furthermore augment psychological wellbeing.

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Deaths among Homeless Unclaimed Elderly: A Study from South and South East Delhi

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ABSTRACT

The aim of this study was to review the autopsy characteristics and causes of death in the unclaimed bodies with age 60 years and above. The autopsy records of the unclaimed corpses from the year 2006 to 2012, were retrospectively analysed. Among the 226 cases majority (86%) of them were males. Natural deaths were seen in 87 per cent cases, accidental deaths in 12 per cent and suicidal deaths in 1 per cent cases were recorded. Acute/chronic lung diseases as well as road traffic accidents are greatly aggravated due to homelessness. It is therefore important to provide affordable shelters, better job opportunities and access to better health care facilities to homeless elderly people.

Key Words: Mortality, homeless, unclaimed, elderly, autopsy

According to a survey in 2010, nearly 56,000 people were estimated to be homeless in Delhi and elderly, aged 60 years and above constituted about 3 per cent of all homeless (Project Management Unit, 2010). Though apparently elderly persons attribute to only a small proportion however it is important to note that various studies on the subject have reported much higher mortality rates among the homeless people as compared to the general population (Hibbs *et al.*,

1994; David, 2009; Cheung & Hwang, 2004). Therefore, relatively small number of elderly persons may be attributed to the shorter life expectancy among the homeless people.

Whenever the problems of homeless people are focused upon, issues pertaining homeless elderly tend to be easily overlooked. Most of the homeless elderly have poorer health status than elderly in general population and are incapable of taking jobs to support themselves. This further aggravates their poverty and narrows down the chances to afford housing in future. A vicious process is hence created in which homelessness leads to a decline in health status that aggravates the problem of joblessness and lowers the chances to be able to afford shelter in future.

Homeless elderly persons belong to two groups. One, those who have recently been uprooted from their homes due to poverty or personal feuds and two, those who grow old on streets and have been homeless for long duration. Most of these homeless elderly people are migrants from the villages of the neighbouring states of Uttar Pradesh and Bihar (Project Management Unit, 2010). Being migrants, they usually lack acquaintances in the city and are often unclaimed after death.

An "unclaimed body" refers to, "the body of a person who dies in a hospital, prison or public place, which has not been claimed by any near relatives or personal friends within such time period as may be prescribed" (The Delhi Anatomy Act, 1953). According to the police manual, a dead body can be declared unclaimed after 72 hours of death and police can dispose the body after that duration according to the religious customs (Koshy, 1992).

The aim of this study was to review the autopsy characteristics and causes of death in the unclaimed/unidentified elderly bodies.

Method

The All India Institute of Medical Sciences (AIIMS), is the largest tertiary care hospital in the capital city of India where all the medico legal autopsies of South and South East, are conducted. The autopsy records of all the unclaimed corpses at Department of Forensic

Medicine, All India Institute of Medical Sciences (AIIMS), New Delhi from 2006 to 2012 were searched. Among these, the elderly population, defined as aged 60 years and above, were included in the study.

Results

The authors found a total of 1,455 cases of unclaimed corpses autopsied at AIIMS from 2006 to 2012. Of these, 226 (16%) cases were aged 60 years and above. No particular pattern of change was observed in the number of unclaimed elderly autopsied over the 7 years duration (Figure 1). Table 1 shows the basic demographic and autopsy characteristics of all the cases. Most of the cases were males (86%) and 65 per cent cases were in the age group of 60–69 years. A slightly higher number of cases were autopsied in summer months as compared to winters. Majority of the corpses appeared to belong to lower socio-economic status with nearly 81 per cent having a thin built and majority of the cases not appropriately dressed. About 20 cases were found to be partially or completely naked. DNA profiling for the purpose of identification was done in 2 cases for identification and visceral analysis for the confirmation of the cause of death was carried out in 6 cases.

Figure 1
Yearly variation in the number of unclaimed elderly cases autopsied

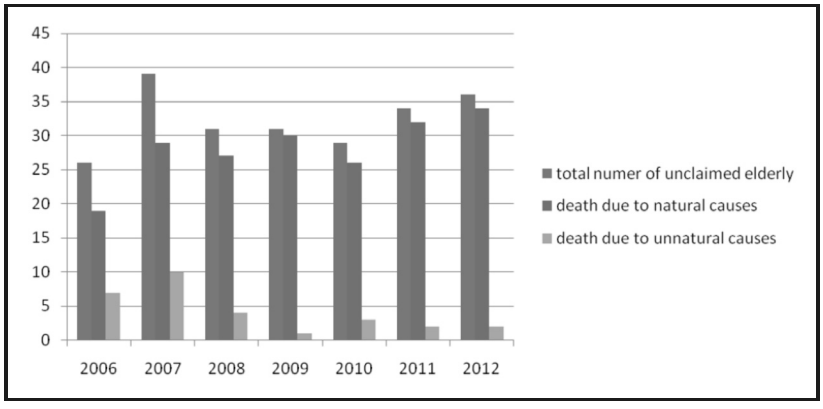

Table 1
Demographic and Autopsy Findings of the Cases

Variable	*Number*
Age	
Mean	65
60-69 years	148
70-79 years	69
=80 years	9
Sex	
Male	195
Female	31
Season of death	
Summer (April–September)	122
Winter (October–March)	104
Built on appearance	
Thin	184
Average	39
Obese	2
Clothing	
Fully clothed	206
Partially/completely naked	20
Decomposition changes (at autopsy)	
Mild/no decomposition	196
Severe decomposition	30
Antemortem injuries	
Present	23
Absent	203
Mode of death	
Natural	197
Accidental	26
Suicidal	3
Homicidal	Nil

The average time since death estimated at autopsy was 5.5 days (range, 1–20 days). Severe signs of decomposition were observed in 30 cases. Ante-mortem injuries were present in 23 cases and mostly in the cases associated with accidental death. There was a preponderance of natural mode of death, seen in 87 per cent cases. The accidental and suicidal deaths were seen in 26 and 3 cases, respectively.

Table 2 shows the various causes of death. Among the natural causes acute pneumonia accounted for nearly 67 per cent cases. The other natural causes of death were chronic lung diseases, cardiovascular diseases, chronic liver disease, sepsis and heat stroke. Accidental deaths mostly occurred due to road traffic accidents culminating in either fatal head injury or hemorrhage leading to shock. Accidental drowning was seen in 2 cases. Suicidal poisoning was the cause of death in 3 cases. There were no homicidal deaths reported. The various places of recovery of the corpse are shown in Table 3. Majority of the cases were homeless, residing besides the road, at the religious places, bus stands and railway tracts.

Table 2
Distribution of the Cases According to the Manner and Cause of Death

Cause of death	*No. of cases*	*Percentage of total*
Natural (n = 197)		
Acute pneumonia	132	58.4
Chronic lung disease	44	19.5
Sepsis	14	6.2
Cardiovascular disease	5	2.2
Chronic liver disease	1	0.4
Heat stroke	1	0.4
Unnatural (n = 29)		
Accidental (n = 26)		
Hemorrhagic shock	17	7.5
Severe head injury	7	3.1
Drowning	2	0.9
Suicidal (n = 3)		
Poisoning	3	1.3

Table 3
Distribution of Cases According to the Location of Recovery of Corpse

Location	*No.of cases*	*Percentage*
Roadside	167	73.9
Bus stand	14	6.2
Religious places	14	6.2
Railway tract	12	5.3
Hospital	7	3.1
Public park	4	1.8
Sewage/drain	2	0.9
Water	1	0.4
Forest	1	0.4
Deserted house	1	0.4
Dustbin	1	0.4
others	2	0.9

Discussion

According to the India's Planning Commission elderly population in India is expected to rise to 12 per cent of the total population by 2025, with 10 per cent of them being bedridden (Sinha, 2014). Majority of the Indian elderly are women and nearly 50 per cent rely on someone for financial support, often due to widowhood or separation (Rajan, 2001). Being physically weak, elderly people are prone to victimisation and physical abuse. A rise in the reports of financial deprivation and exploitation, snatching the property, abandonment, psychological humiliation and neglect, among the elderly in India, indicates a compromise in their mental and physical health (Shankardass, 2009).

This could possibly aggravate homelessness among them. This study was aimed at identifying the important and preventable causes of death in homeless elderly people who remain unclaimed after death.

In keeping with the previous studies on the subject, predominance of males was noted (Kumar *et al.,* 2009; Büyük *et al.,* 2008; Altun

et al., 1999). This is possibly due to the fact that most of the homeless people are migrants from the villages and among the migrants, males usually outnumber the females. In the present study, natural causes were responsible for about 87 per cent of unclaimed deaths. However in a previous report of our series (Kumar *et al.,* 2009), we observed 61 per cent of all unclaimed deaths occurring due to the natural events. This higher percentage of natural deaths among the elderly people as compared to the general homeless population signifies the high prevalence of acute and chronic medical conditions in the former that often go untreated and culminate in death. Though large-scale studies describing the health behaviours of the elderly Indian population are lacking, nevertheless numerous regional surveys have observed that high risk behaviours, like tobacco and alcohol use (Goswami *et al.,* 2005; Gupta *et al.,* 2005), and physical inactivity (Rastogi *et al.,* 2004) are quite prevalent in this population. Moreover, a study observed a rise in the incidence of non communicable diseases like cardiovascular, metabolic, and degenerative disorders, as well as communicable diseases among the elderly population of India (Ingle & Nath, 2008). Also it was noted that accidents, mainly the road traffic accidents, were the second most important cause of death. Majority of the homeless live besides the road and hence are prone to the road traffic accidents. We also identified three suicidal deaths that may be attributed to the mental depression due to poverty and neglect by the society.

In summary, to tackle the problem of homelessness among the elderly, it is important to provide affordable housing for the homeless elderly. A report suggests that loneliness increases the risk of early death by 19 per cent (Sinha, 2014). Therefore shelter homes for the elderly will not only reduce the burden of homeless on streets but also will take care of loneliness among them. Second, better job opportunities are required especially for the elderly. Third, access to better health care facilities must be ensured and knowledge regarding their utilisation promoted.

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Perceived Health and Hygiene Practices of Elderly Living in a Slum of Delhi: A Preliminary Survey

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ABSTRACT

This preliminary survey was planned to find out the self perception of health and hygiene practices of elderly living in a slum of Delhi. Randomly selected 50 elderly 60 yrs. and above were interviewed individually. After looking at the housing conditions, self reported health issues and hygiene practices it was found that the need for public health initiatives was very important especially in the slum areas. People were living in unhygienic conditions without proper facilities of sanitation and water which led to a number of health issues. It is suggested that the government should take measures for improving public health of the people, specially elderly people. Appropriate body or the policy makers plan interventions to make the people aware about proper hygienic practices and health care measures.

Keywords: Public health, Hygiene, Urban slums, Senior citizens

The strong association between ill health and disability with age has led to concerns that as the population age so will the burden of ill health. Strategies of healthy ageing have aimed at keeping people in good health as long as possible. Since the 1990's the World Health Organisation has adopted the term "active ageing" to signal that the

ageing process can be so. Promoting active ageing has many facets but any public health approach to active ageing needs to consider the major preventable health threats in old age. Primary prevention of chronic diseases starts with promotion of healthy lifestyle in earlier life. Secondary prevention may be appropriate where the condition can be detected and treated at an early age. Screening is a public health measure where a suitable test is used to detect a disease before it causes symptoms or signs.

The need for public health initiatives is evident by understanding the three major pathways of old age frailties and functional dependence involving: (1) physiological or senescent changes in an individual due to age factor. (2) Non-senescent changes owing to morbidity or poor health stock and 3) poor living environment of the senior citizens.

It can be posited that in a country like India with very high old age poverty, public health and its involvement in managing the health issues of the ageing population is the cost effective solution. It may as well help the country to meet its objective of healthy and active ageing (Alam, 2006).

Review of Literature

Gupta *et. al.* (2009) conducted a cross sectional study of health profile among rural elderly of North West Rajasthan. It was found that the most common complaints were: dental problems, diminished visual acuity, arthritis and disorders of joint and muscles, hypertension, hearing impairment, gastrointestinal complaints and diabetes.

Samuel, R. (2009) conducted a prevalence study on physical and cognitive disability among senior citizens in a community population. The study was conducted in Tamil Nadu. Interestingly, the population was quite healthy and only less than 25 per cent suffered from different age related problems. The disability profile was higher in locomotors and cognitive domain which was found to significantly affect the person's ability to perform to household tasks.

Dey, S., *et al.* (2012) conducted a study on the health of elderly in India and the challenges to access and afford the services. The

growth of the elderly population in the coming decades will bring with it unprecedented burdens of morbidity and mortality across the country. As we have outlined, key challenges to access to health for the Indian elderly include social barriers shaped by gender and other axes of social inequality (religion, caste, socioeconomic status, and stigma). Physical barriers include reduced mobility, declining social engagement, and the limited reach of the health system. Health affordability constraints include limitations in income, employment, and assets, as well as the limitations of financial protection offered for health expenditures in the Indian health system.

Kumar, P. and Kumar, A. (2012) conducted a study on socio economic status and self rated health status of elderly in rural Uttar Pradesh. Self rating of health is an important initiative and tool for determining the health status of the elderly. Present study was aimed to know the influence of socio-economic factors on the health status of the elderly. Socio-economic characteristics i.e. age, education, marital status, occupation before age 60, living condition; social contacts were found to be significant. Self rating of health among the elderly is valid measure of the respondent's objective health status and match up as well to physician evaluations. Living condition and loneliness affect health of the elderly. In rural background, where poverty prevails in large extent, health problem of the elderly is a matter to be concerned by the society on the whole

Thakur, R.P. *et al*., (2013) conducted a study to identify the geriatric health problems in the samples drawn from a slum and a village, and also to explore any gender and urban-rural difference in morbidity. They found that the tobacco use was very high at 58.97 per cent (240/407). Visual impairment (including uncorrected presbyopia) was the most common handicap with prevalence of 83.29 per cent (339/407), with males more affected than females (OR = 2.52, 95% CI 1.32–4.87). Uncorrected hearing impairment was also common. Urinary complaints were also more common in males (OR = 1.68, 95% CI = 0.93–3.04). More rural elders were living alone than their urban counterpart (OR = 2.87, 95% CI

1.23–6.86). History of weight loss was higher in the rural areas, while tendency to obesity was higher in the urban areas. An appreciable number 29.2 per cent (119/407) had unoperated cataract. Prevalence of hypertension was 30.7 per cent (125/407); 12 per cent (49/407) had diabetes; 7.6 per cent (31/407) gave history of ischemic heart disease, males more than females (OR = 3.75, 95% CI 1.62–8.82). A large proportion, 32.6 per cent, (133/407) had dental problems. Almost half of the population gave history of depression.

Objectives

- to gain an understanding of the lifestyle of the senior citizens living in the urban slums
- to understand the health and hygiene conditions of the senior citizens living in the urban slums.
- to suggest measures to improve their health and hygiene conditions.

Methodology

Sampling

50 Senior citizens, 60 years and above of both the sexes (Male=27 and Female=23) living in the urban slum[1] of south Delhi were randomly selected for this study. All the elderly belonged to below poverty line (BPL) category.

Tools of data collection

- Case study
- Questionnaire Guide for the elderly slum resident
- Personal data sheet

Data Collection

Using a combined interview and quasi participation observation approach, the senior citizens of the urban slum were interviewed. An interview guide was filled out by the researcher and the questions were asked in such a way (or in their dialect) so that they could follow it

properly. Family members of the respondent, who were present at the time of interview, were allowed to help the elderly in answering the questions properly.

Results

Most of the subjects (60%) of this study were in the young old category (60–70 years) Some of the respondents completed their primary education (26%) but most of them (70%) were illiterate. All most all the male subjects of this study were still working. 56 per cent women were working and 34 per cent women were home makers. The main occupation of these subjects (both male and female) were: construction work (37%), temporary food stall (48%), and 15 per cent were working as riksha pullers (no female was doing this job).

Living Arrangement and Dietary Preferences

30 per cent of the respondents were living in nuclear families, 64 per cent in joint families and only 6 per cent live alone. 60 per cent were vegetarians and 40 per cent were non-vegetarians.

Their diet consisted of the usual Indian meal: pulses, grain/bread and vegetables. Protein intake was in the form of pulses and meat/eggs for non vegetarian. Fruits and dairy products were consumed in a limited way due to economical constraints.

Activity Level

The disability status of the senior citizens in the urban slum was low in terms of physical movement. All respondents were at least able to move around independently, most with a medium level of activity – moving beyond the house and completing some task, such as taking a walk. Most of the subjects reported decline in their physical ability and felt exertion in any physical activity for longer period. However, due to financial problems and for their survival they had to work.

Self Reported Illness

- 60–64 years: lung conditions, high blood sugar, heart condition (cardiovascular diseases/CVD), abdominal gas (effect of decreased hunger), cataracts, no teeth/no dentures, joint pain, tuberculosis (under medication)

- 65–69 years: respiratory problems, liver conditions, joint pain and weakness, prolonged cough due to smoking, cataract (unable to seek treatment due to lack of finances) previous history of typhoid, CVD
- 70–79 years: Strained eyes, joint pain and weakness, ulcer, CVD, anxiety
- 80+: pain in all joints of the body, hypertension, ulcers

Hygiene Practices

Basic hygiene practices like taking a bath regularly, changing and washing of clothes, brushing of teeth, grooming were practiced by most of the respondents. Some reported that during winter they limit their bathing. However most of them did not wash their hands before having their meals. In slums, the housing conditions were very poor and there were exposed drains running in front of their house which contributed to the stinking smell and invited the flies and insects. Drainage system varies from some areas of closed gutters and some open. Sanitation was a major problem in the urban slums. Majority of the households did not have their own separate bathrooms and so they use the public ones or defecate in the open. This seemed to be a problem for the senior citizens as it was difficult for them to go during night time. Drinking water facility was not available and they consume tap water. Only a few reported of boiling the water before consuming it. Respondents were aware of water borne diseases but they did not have any other option or source of drinking water.

About half of the respondents still smoke bidi or drink alcohol in a regular basis. Chewing tobacco was also found to use by many of the respondents. Those who have stopped taking such substances were due to lungs/liver problems.

Almost 100 per cent of the elderly of this study were not overweight or obese. Besides an occasional borderline exception, excess weight is basically negligible in this population. It was evident that most consume only two meals per day and in fact struggle to attain their daily nutritional needs and required calories.

Most living quarters consists of small rooms and building right alongside each other. Despite having a window, air ventilation is quite unsatisfactory. Each house consisted of a single room which was divided into two by makeshift wall and included a small kitchen with washing facilities there itself. Such a room was shared by around 8 family members. In particular the corridors were littered with piles of contained as well as uncontained garbage.

Discussion and Conclusion

The prevention of disease is more effective in achieving a healthy status than curative measures. The elderly living in the urban slum surveyed were not able to access the health benefits provided by the government properly. Most of the elderly followed just basic personal hygiene practices but the unhygienic surrounding areas of the locality is contributing to the rise of number of diseases and negatively effecting elderly's level of health and hygiene. The sanitation of a nation inevitably indicates the level of primary health.

Health prevention measures are essential especially for those localities (or slums) lacking proper sanitation. Preventive health care services need to be made available and accessible in both urban and rural areas. Public health strategies for the aged would be to prevent frailty and disability, prevent excess morbidity and provide excellent custodial care. The health needs and morbidities of the aged population have a huge implication as the aged commonly experience co-morbidities due to increased frailty from the wear and tear of a lifespan. With decreased physical abilities, retirement and decreased productivity, the senior citizens can become economically dependent population as well, thus their health needs are not fully met due to financial constraints.

It is essential for the government to take up public health interventions seriously because India's elderly population is increasing speedily. The measures such as provision of primary and preventive health care, environmental hygiene and proper planning of housing, specially the slum areas, will serve as a great impetus not only for alleviating the burden of old age morbidities and promoting active ageing, but will promote the health of the whole nation as well. Public health measures may be the most feasible health wise in terms of costs

as well as effective outcomes to meet the health demands for the nations ageing population.

Note

1. Slums are "residential areas where dwellings are unfit for human habitation" because they are dilapidated, cramped, poorly ventilated, unclean, or "any combination of these factors which are detrimental to the safety and health". In Delhi 14, 6 per cent of its households live in slums. Migration in search of work is the prime cause of the increasing population in Delhi. The high cost of living in the cities, specially in Delhi forces the migrants from near by villages for work to set up makeshift shelters with whatever materials to form settlements on waste ground or on pavements.

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An Assessment of the Health, Social and Economic Insecurities of the Aged Population in Major Indian States vis-à-vis Assam

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ABSTRACT

The present paper is based on the analysis of data from secondary sources, viz. existing literature and reports with the aim to understand the vulnerability of the aged population in major states of India with reference to Assam in terms of old age dependency, health status, economic support, living arrangements of the aged, etc. and also the existing public provisions for financial security of the aged in terms of pension as well as non-pension arrangements presently available in India for the destitute elderly and retiring employees. The paper finds that India has failed to respond adequately and effectively to the demographic changes particularly in the backdrop of economic reforms, especially in terms of health and financial security requirements of the aged. Such poor response to the security requirements (especially financial) of the aged population is a big threat of exclusion of this vulnerable group from the market and eventually from the society.

Keywords: Aged Population, Financial Exclusion, Pension and Non-Pension Provisions.

Population ageing was considered as an issue related to the developed nations alone until very recently. The process of ageing in India has been gathering momentum since the early 1980s with about 8.3 per cent of the total population aged 60 years and above in 2011 (Rath *et al.,* 2011). This is in conformity with the trend of overall declining fertility and increasing survival chances – both at birth and in later life years.

Elderly population is an important group which needs attention, not only because of their increasing number (Priya, 2008) but mainly because of the fact that the elderly in the developing countries suffer from chronic deprivation and poverty as socio-economic relations change which make them vulnerable. Exclusion and deprivation are the common maladies in almost all-ageing societies. Old age vulnerabilities exist in the forms of health, economic and social insecurities. Old age brings with it reduced capacity for work, as well as difficulties in accessing health care and other essential services, increasing the likelihood of older people being dependent on others for their needs, resulting in higher levels of economic insecurity and deprivation.

With a rapid shift from traditional living arrangements to nuclear ones, the elderly population is being exposed to high levels of insecurity and increase in social exclusion. While in the western countries, most of the elderly are under the social safety net, the incidence and magnitude of the economic insecurity are high in the case of developing countries like India. Livelihood during old age may be termed as a major problem for the poor with the lack of proper support system and their inability to work in their old age (Rupambara, 2007).

Objectives of the Study

The basic objectives of this study are to:

1. Understand the health, economic and social insecurities of the aged population in major states of India vis-à-vis Assam,
2. Know the status of the existing financial security measures for the destitute elderly and retiring employees in India,

3. Ascertain whether these government measures for the elderly are putting them at risk of exclusion.

Materials and Methods

The paper is a descriptive one drawing on secondary sources, viz. available literature and reports to understand the vulnerability of the Indian aged population in terms of health, economic and social insecurities as well as the existing public pension provisions to find out the risk of exclusion faced by the aged in India with reference to Assam. For the present study, the pension aspect of financial security is being focused upon.

Elderly Vulnerability[1] in Indian States

Vulnerability among the elderly arises due to an increased incidence of illness and disability, their economic dependency upon their spouses, children and other younger family members and also depends on their living arrangement since the elderly are less capable of taking care of themselves compared to younger persons and need the care and support of others in several aspects (Chatterjee and Sheoran, 2007).

Health Status

The various NSS Rounds observed high prevalence of old age diseases in India. In many states, more than 2/3rd of the total aged has reported as suffering from chronic ailments. This is especially the case with Andhra Pradesh, Assam, Kerala and West Bengal. Assam had 62.8 per cent chronically ailing aged in 1986–87, which increased to 69.5 per cent in 1995–96 in rural areas. In urban areas, the same increased from 59.1 to 76.7 per cent. Assam ranked second next to West Bengal in terms of rural aged population with single and multiple diseases (NSS 1995–96). Assam, Andhra Pradesh, Kerala, West Bengal, Orissa, Maharashtra, etc. exceed the mark of half of the total rural population being chronically ill, except Karnataka. Worse still, a large proportion of them suffer from multiple illnesses and fraction of morbid elderly population is rising in most states. The striking level of morbidity among rural elderly deserves serious consideration. The aged in India

are overwhelmingly rural and the rural areas are severely lacking in terms of old age health care (Alam, 2006).

Based on NSS 1995–96 data, Rajan and Misra (2011) quote previous literature to show that the proportion reporting good health declined from 70 per cent among persons aged 60 years and above to 68 per cent among persons aged 70 years and above and to 65 per cent among those 80 years and above. Region-wise, the Western region had the highest proportion (73.4%) of the elderly reporting good health, followed by North Western, Southern and Northern regions respectively. The lowest proportion reporting good health was from the North Eastern Region, followed by the Eastern region.[2] Similarly, lowest proportion of elderly reported suffering from no disease in the Eastern region. The major killers among the elderly consisted of respiratory diseases in rural areas and circulatory disorders in urban areas. About 29 per cent of the elderly populations in India are reported to have received no medical attention before death.

In Assam, as per NSSO report of 2004–05, the out of pocket expenditure for the urban areas for hospitalised treatment in the private sector has increased sharply. For out patient (OPD) and trivial health consultation, the private sector continues to be the preferred choice amongst both the rural and urban areas, while the public sector plays an important role in providing care for emergencies and chronic illness for the poor (Dutta and Bawari, 2007).

Aged Dependency Ratio

Aged dependency ratio is ratio of the population in the age group 60 years and above to that between 15 to 59 years (working population). It measures the pressure on working population. As the ratio increases there may be an increased burden on the working population to maintain the means of livelihood of the economically dependent. This has direct impact on financial expenditures on social security, as well as many indirect consequences.

Table 1
Old Age Dependency Ratios (per 1,000)

Year/Period	*Rural*	*Urban*	*Total*
Census 1981	94	71	89
NSS 43rd Round (1987–88)	111	88	103
Census 1991	123	96	118
NSS 50th Round (1993–94)	108	90	104
NSS 52nd Round (1995–96)	92	74	87
Census 2001	141	107	131
NSS 60th Round (Jan-Jun, 2004)	125	103	119
Census 2011	—	—	133*

Source: NSS 60th Round Report.

* Calculated from Rath *et al.* (2011).

Table 1 shows that the aged dependency ratio has been higher in the rural than in the urban areas. This is due to the relatively higher concentration of the working age population in the urban areas. Every 1,000 rural persons in the working age had to provide support, physically or otherwise, to 125 aged persons, to maintain their daily life. The figure was 103, a little less, in the urban areas. Both the Census and NSS survey estimate the ratio to have increased over time except for NSS 52nd Round, where it shows a decline. The dip in the proportion of the aged in the 52nd round can most likely be attributed to age-reporting bias. Table 1 also shows that the 'burden' of the aged on the working population has increased substantially, during 1994–2011.

Among the major states, the aged dependency ratio is the highest in Kerala (which has the highest proportion of aged persons) in both the rural and urban areas and for both sexes, followed by Jammu & Kashmir and Uttaranchal in the rural, and Maharashtra and Uttaranchal in the urban areas. Assam's rural aged dependency is the lowest and Delhi's urban aged dependency is the lowest. Kerala's rural aged dependency ratio is higher than the urban aged dependency ratio and females outnumber males in both rural and urban place, with the female proportion slightly more in case of urban places. Assam's aged dependency ratio is equal for both urban and rural areas.

The female aged dependency ratio as well as the gap between female and male aged dependency ratios is increasing over time (CSO, 2011). Overall, the aged dependency ratio varied from 84 in Delhi and 100 in Assam to more than 150 in Himachal Pradesh and Punjab and 165 in Kerala[3].

Economic Independence

Aged dependency is more a reflection of demographic than an economic indicator. So it is necessary to study the economic independence of the aged population. About 65 per cent of the aged had to depend on others for their day-to-day maintenance. The situation was worse for the elderly females with only 14 per cent and 17 per cent being economically independent in rural and urban areas respectively. The elderly males were comparatively better off as majority of them (51 to 56% in urban and rural areas) did not depend on others for their livelihood.

At the national level, more than 70 per cent of the elderly females were fully dependent in both rural and urban areas (72.07% and 72.12%) while just over 30 per cent elderly males (32.7% in rural and 30.11% in urban areas) are fully dependent. Kerala is the topper in the rural male category with more than 43 per cent as fully dependent while more than 81 per cent of women are fully dependent in rural Assam. Bihar records highest rates of fully dependents among the urban males and Jammu & Kashmir among the urban females (Prasad, 2011). States like Haryana and Kerala record higher rates in the category of partial dependence. In India, more than 80 per cent of the women fall in both categories of partial dependency.

Compared to the previous NSS Round (1995–96), the economic condition of the elderly across the sub-groups of elderly population, particularly urban female elderly improved in the NSS Round of 2004 (CSO, 2011). However, this cannot be taken as a conclusive indication of the present livelihood status of the aged in India.

Economic Support Providers

As a large proportion of the elderly were found to be economically dependent on others for their livelihood, it is pertinent to know their economic support providers.

Table 2 shows that maximum of the economically dependent aged (about 85% in case of rural and urban aged males and 71 to 75% in case of aged females) had to depend on their children for their economic support. A sizable proportion (varying from 6 to 19% across the sub categories) depended on their spouses and only 2–3 per cent of them were supported by their grandchildren. The rest (6–7%) had to depend on 'others', including non-relations.

Table 2
Percentage Distribution of the Aged by their Economic Support Providers of the Aged Indians

Providers	*Males Rural & Urban*	*Females*		*Total*	
		Rural	*Urban*	*Rural*	*Urban*
Spouse	6–7	16	19	13	15
Children	85	75	71	78	76
Grandchildren	02	03	03	03	03
Others (including non-relations)	06	06	07	06	06

Sources: NSS 60th Round Report, & CSO (2011)

Between the years 1995–96 and 2004, the distribution of the aged who were economically dependent changed in respect of the category of persons supporting them for their livelihood. The patterns of change are not similar for males and females, but are so for the elderly living in the rural and urban areas. In the inter-survey periods, the proportion of the aged males and females depending on their children for economic support has increased in both rural and urban areas and more so in the rural areas. On the other hand, the proportion of those depending on their spouses decreased, in general, among the males but marginally increased among the aged females in the urban areas. The proportion in this category, however, did not show any change between the periods in the rural areas (Prasad, 2011).

Reverse Dependency

While for the economically dependent elderly, information on economic support providers are essential, for economically

independent elderly, information on the number of dependents is relevant. Of the economically independent male elderly, more than 90 per cent were having one or more dependents, whereas, among the economically independent elderly females, about 65 per cent were having one or more dependents. The gender differences were quite pronounced in this respect (CSO, 2011). On an average an aged male had more dependants than an aged female during 2004. The pattern of the distribution, however, appears to be the same for both rural and urban areas. At the national level, the average number of dependents per elderly is 2.80 for rural male and 2.15 for the urban male while it is only 1.60 and 1.39 respectively for the female counterparts. Among the states, Assam has the highest reverse dependency (rural male). U.P., Bihar, Orissa, Rajasthan, Uttaranchal and West Bengal show relatively high levels of reverse dependency, while the southern states of Kerala and Tamil Nadu show less incidence of reverse dependency (Prasad, 2011).

Living Arrangement

According to NSS 60th Round, about 58 per cent of the aged were living with their spouses and another 33 per cent were living without their spouses but with their children, while about 4 to 5 per cent were living with other relations and non-relations. 4 to 5 per cent were living alone.

Table 3

Percentage Distribution of the Aged by their Living Arrangement

Living with	*Males*	*Females*	*Total (Rural & Urban Males & Females)*
Spouse	>75	<40	58
Children	<20	50	33
Alone	2–3	7–8	4–5
Others	03	6–7	4–5

Sources: NSS 60th Round Report, & CSO (2011)

Table 3 shows that in terms of proportions, more males than females lived with their spouses. On the other hand, proportionately more females lived either alone or with their surviving children or lived with other relations and non-relations.

According to NSS 1991, more elderly women (4.1%) live alone compared to elderly men (1.8%). The incidence of widowhood is higher among women because they live longer, and because in our society, men generally marry women younger than themselves. Between 1995–96 and 2004, the proportion of the aged living alone remained almost the same, but the proportion of the aged who lived with their spouses had gone up from 55 to 57 per cent in urban areas and remained the same in rural areas. The fall between 1995–96 and 2004 in the proportion of aged persons living with their children reflects the gradual break-down of the extended family system in India in both its rural and urban areas. State-wise, more than 15 per cent of females in rural areas of Tamil Nadu and Uttaranchal and urban areas of Chhattisgarh were 'living alone' during the survey period. In Assam, more aged females live alone than aged males and the proportion of lonely aged females is higher in rural areas.

According to the 2001 census, 33.1 per cent of the elderly in India live without their spouses. The widowers among older men form 14.9 per cent as against 50.1 per cent widows among elderly women. Among the elderly (80 years and above), 71.1 per cent of women were widows while widowers formed only 28.9 per cent of men. (Chatterjee and Sheoran, 2007).

Existing Financial Security Measures

The preceding discussion has revealed that a large fraction of elderly Indian population would continue to face poor old age health, financial dependency and social insecurity. Hence, it is pertinent to understand the major public financial security plans for the aged.

Financial Security of Destitute Elderly

The poor, especially the destitute is the State's responsibility. The Constitution of India lays down specifically for the welfare and social security of the aged. At present financial security for aged in India are provided by:

(1) *Centrally financed National Social Assistance Programme (NSAP)*[4]: The centrally financed Indira Gandhi National Old Age Pension Scheme (IGNOAPS) was launched on 15 August, 1995 with

the conditions that the beneficiary (male or female) should not be less than 65 years of age, should be a destitute (with no support from own source or from family) and amount of central assistance is Rs 75 per month with provision for state providing further benefits.

However, this cent per cent centrally sponsored programmes which provided opportunities for linking social assistance packages to poverty alleviation schemes and implemented in a bottom-up approach by involving panchayats and local bodies, suffers from complex administrative procedures which are difficult for illiterates. Moreover, the size of programme beneficiaries is capped artificially by using an arbitrary ceiling formula:

Numerical ceiling =

Total Population x Poverty ratio x Proportion of 65 years and above x 0.5.

The following limitations of NSAP (Alam, 2006) should be taken account of:

(i) Even though there has been a hike in the overall contribution by the Centre towards the NSAP, the per capita pension amount is meagre.

(ii) The amount of pension as well as differential entitlement age varies from one state to another which raises questions about the underlying factors used to determine the same by the states.

(iii) Destitution is defined as per norms of the Central Government assuming parity between the old age poverty and the general poverty.

(iv) Only half of the below poverty aged are considered as worthy of pension benefits. The other half is taken to be drawing support from elsewhere.

(v) The destitute elderly run the risk of being left out owing to under coverage and arbitrary ceiling formula capping the size of beneficiaries.

(vi) Several studies have found signs of administrative mismatch, underutilisation and limited coverage of the beneficiaries. The number of target beneficiaries falls short of the ceiling population in all states except Andhra Pradesh, Tamil Nadu and Rajasthan.

This suggests the insecurity and pathetic financial condition suffered by the aged in India.

(2) *Welfare activities funded by the states*: These include (a) old age pension programmes and (b) non-pension plans for the destitute elderly.

Financial Security for Retiring Employees

The Central and State governments in India have been making provisions for two major benefits: (i) a pay-as-you-go (PAYG) system which is an inflation adjusted post-retirement pension cover with benefit rate fixed at around 50 per cent of the terminal wage, and (ii) a contributory provident fund with defined benefits.

The growing burden of pension obligation on government, faster demographic ageing, growing life span and also the restricted investment options of public fund managers have led to the introduction of an earnings related self-contributory system with a defined benefit and run by private fund managers under the control of an empowered regulatory body despite marginally declining public sector employment. These measures, modelled on the Peruvian pension plan, were largely adopted on lines suggested by an expert team on Old Age Social and Income Security (OASIS) Project.

In August 2003, the Government approved of the scheme of an earnings related and defined contributory pension system based on: (i) individual retirement account (IRA), (ii) multiple product choice for the account holder, (iii) professional fund managers with participation from private financial institutions, (iv) a regulatory authority, and (v) portability through a centralised record keeping system. A Pension Fund Regulatory and Development Authority (PFRDA) was established on the lines of many Latin American nations to supervise the functioning of the new pension system and regulate its overall management.

However, there arise several questions (Alam, 2006) regarding the reformed pension system:

1. A serious concern for a large number of subscribers with limited understanding of the capital market complexities is that the Government does not guarantee either about the form of

minimum benefit paid to the subscribers or regarding the security of their subscriptions.

2. In the new IRA based system, an individual is held responsible for all the necessary investment decisions and their associated risks. A big majority are financially illiterate and may suffer disproportionate risks.
3. While moving away from the pay-as-you-go pension system, India completely overlooked the World Bank's suggestion of a multi-pillared social security system comprising of (i) a mandatory, publicly managed and tax financed social security system, (ii) a mandatory, pay-as-you-go and privately managed system and (iii) a voluntary pillar for persons looking for additional security.
4. Given the past scams in the financial market and the ineffective role of the Securities and Exchange Board of India (SEBI), the fate of pension subscribers would remain vague under the new plan even though the PFRDA acts as the regulator against all kinds of fraud, dispute resolutions, standardisation of information about the fund performance, etc. Argentina and Columbia provide insurance for financial risks subcontracting private insurance companies for provision of lifetime pension benefit.

Apart from the above, the declining rate on small savings has added hardship of the aged in India. They lose both due to declining interest earnings and inflation eroding their savings. Likewise, in the period of liberalisation of the Indian economy, the state has only attended to the needs of corporate producers, who have received numerous concessions while the elderly continue to be taxed and denied benefits. The state has further neglected the income security of vast sections of marginalised labour, many of whom are underemployed with meagre returns for their labour. Older people constitute a significant section of this marginalised workforce, with a bulk of them being women in the unorganised sector (Gopal, 2006).

Other Schemes

Some new schemes like "Swabhimaan" and "Swavalamban" have been started by the Central Government covering the aged persons. A National Council for Senior Citizens has been constituted for advising

central and state governments on issues relevant to the elderly. A National Programme of Health Care for the Elderly has been launched to cover 100 districts in the country and to set up 8 Regional Geriatric Healthcare Centres in reputed Medical Education Institutions (MIB, 2012). However, the vastness of India belies the hope that these schemes would be sufficient.

Findings and Discussion

Most primary surveys have reported that elderly in India in general and in rural areas in particular have serious health problems. Over two-thirds in Assam, Andhra Pradesh, Kerala and West Bengal suffer from chronic ailments. The share in case of Assam is on the increase from rural aged (mid 1980s) to the urban aged (mid 1990s). There does not seem any drastic change in recent years. About 29 per cent die without medical attention in India. In Assam, both urban and rural people turn to private hospitals for out patient treatment and trivial health issues. The public hospitals are resorted to in case of emergencies and by the poor ones.

The female aged dependency is higher and the gap between male and female aged dependency is rising over the years. The rural aged dependency is also found to be greater than the urban one. The burden has been increasing in the period 1994–2011. Kerala has the highest aged dependency both for urban and rural, male and female. Interestingly, Assam has the lowest rural aged dependency.

In terms of economic dependency, the situation is worse for elderly females, particularly those living in rural areas. A striking revelation is that over 81 per cent rural aged women in Assam are fully dependent on others for their daily livelihood. Kerala tops in case of rural males with well over 2/5th of them fully dependent. Overall, more than 80 per cent women (rural and urban) are partially dependent.

Dependency on children has been rising both in rural and urban areas (71–85%) and that on spouses has decreased. Over 90 per cent aged males and over 65 per cent aged females have one or more dependents. Reverse dependency is higher in rural areas. Assam has the highest rural male dependency. The southern states have lesser reverse dependency than the BIMARU states and Assam.

An interesting gender-differential is observed in the living arrangement among the elderly and the pattern is similar in both rural and urban areas. There are more widows than widowers. In case of Assam, more aged females live alone than aged males and the proportion of lonely aged females is higher in rural areas.

The per capita pension amount is meagre even if combined with the state pension. Goa, Tamil Nadu, Delhi and a few other states/U.T.s pay a reasonable state pension when combined with the central pension. Pension norms of the Central Government which assume parity between the old age poverty and the general poverty are faulty. The ceiling formula for capping the size of beneficiaries is arbitrary. Moreover, there are administrative mismatch, underutilisation and limited coverage of the beneficiaries. Like the pension amount, considerable variations in the entitlement age for state pensions exist. Some states follow a lower age criterion for women beneficiaries. This suggests the insecurity and pathetic financial condition suffered by the destitute aged in India, particularly the aged female.

The Government does not guarantee about the minimum benefit or security of the subscriptions of the new pension scheme subscribers. This is a serious concern for a large number of employees with limited investment skills or understanding of the capital market complexities, pushing them to disproportionate risks. India has completely overlooked the World Bank's suggestion of a multi-pillared social security system for the aged. Thus, the fate of pension subscribers would remain vague under the new plan.

The declining rate on small savings has added hardship faced by the aged in India. Likewise, a large majority of the aged from the unorganised sector remain outside the purview of any credible income security cover provided by the Government.

Conclusion

The aged in India are being increasingly exposed to health, economic and social insecurities in the post liberalised economic regime. The image that emerges for Assam which has about 6 per cent aged population warrants concern, whereas the destitute pension amount is one of the lowest in this state. On the whole, the situation is

worse in rural areas and among destitute and female elderly persons. The meagre public pension arbitrarily doled through faulty selection of destitute elderly leaves majority of them uncovered by the schemes. Also, the new pension scheme for the retiring employees leaves them exposed to market risks.

Given the weak financial status, high prevalence of multiple diseases and the poor state response to the elderly security requirements (especially financial), it is obvious that bulk of India's aged population is being risked to face financial difficulties. This is a big threat of exclusion of this vulnerable group from the market and eventually from the society.

Aged women being at the raw edge of the picture, special provisions, particularly for widows should be made to ensure their security. A state supported social assistance system should be evolved with a greater focus on the crossing point between ageing and financial exclusion. Suitable amendments in the ceiling formula of the IGNOAPS with states helping to bring the entire destitute aged under the scheme should be made. A universal pension for all citizens above a certain age as in Nepal cannot be supported. There being an obvious link between income and mortality, the rich receive the transfer for much longer than the poor. Hence there is an urgent need for well targeted schemes with lower initial eligibility ages to benefit poorer elderly. The schemes can be more effective if linked to mortality and morbidity instead of poverty (Pal and Palacios, 2011). So, special long term savings schemes with greater returns on elderly savings for retirement purposes with provisions of higher and tax free interest earnings should be designed. Simultaneously, such pension schemes need to be managed effectively to provide sufficient returns to the pensioners. There is an urgent need to expand financial security measures beyond the organised sector of employment.

Pension provision at doorstep for the oldest old, subsidised mobile medical units, PDS coverage for all destitute persons above 60 years, microfinance to SHGs of older persons, etc. are some other means of ensuring inclusion of the aged besides a host of other financial measures.

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Notes

1. Data for this section pertains to NSS 60th Round (January-June, 2004) wherever not cited otherwise.
2. Assam included in the Eastern Region with Orissa and West Bengal.
3. Calculated from Central Statistics Office (2011).
4. Introduced on 15 August, 1995, NSAP has 5 schemes at present: (a) Indira Gandhi National Old Age Pension Scheme (IGNOAPS), (b) Indira Gandhi National Widow Pension Scheme (IGNWPS), (c) Indira Gandhi National Disability Pension Scheme (IGNDPS), (d) National Family Benefit Scheme (NFBS) and (e) Annapurna Scheme. Only IGNOAPS is within the purview of the present paper.

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