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By Marc E. Agronin and published by W.W. Norton & Company, New York, London, Year 2010, pp. 308, Price \$ 27.50.
2. **Elder Care Catastrophe : Rituals of Abuse in Nursing Homes and What You Can Do About It.** By Jason S. Ulsperger & J. David Knottnerus, Paradigm Publishers, London, Year 2010, pp. 222, £ 24.95.
3. **Working with Ageing Families : Therapeutic Solutions for Caregivers, Spouses & Adult Children.** by Katheen W. Piercy, Published by W.W. Norton & Company, New York & London, 2010, pp. 276, Price £ 21.00.

## Frailty in Elderly People: Standardization of Concepts, Pathophysiology, Assessment Tools and Preventive Measures

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### ABSTRACT

*There is no consensus on the definition of frailty. It can be disability, co-morbidity, or ageing. The perception of weakness would be the decline of physiological adaptive capacity resulting in an inability to tolerate stress, such as surgery, infection or injury. It can be seen as the loss of functional homeostasis; individual resist the disease without loss of function and there is a reduction in physiological reserves. The beginning of the “cycle of fragility” is the accumulation of the effects of lack of exercise, poor nutrition, unhealthy environment, injuries, diseases and drugs with ageing. These lead to chronic malnutrition, consolidated by ageing, causing bone loss and skeletal muscle mass (sarcopenia). Fragility is different from ageing, because it can be prevented and reversed. Clinical instruments for assessment and diagnosis developed can measure grip strength, walking speed and physical activity that vary with sex and body size. There is a small number of studies about the fragility and new randomized trials of interventions that can prevent or delay fragility in the elderly. Evaluating new*

*drugs, environmental changes, specialized services, evaluation methods of weakness in critically ill patients, prostheses and nutritional supplementation are needed. Systematic reviews are recommended, because it would help to establish reliable and effective measures. Based on these studies, only physical activity (in particular, activities, strength and balance, and resistance training) apparently has the greatest potential to improve physical function.*

**Key words :** Aged, Fragility, Fragile, Ageing prevention.

The interest in frailty as an entity began to develop between the decades of 80 and 90 (Heppenstall *et al.*, 2009). With the rapid ageing of the population, expressive themes, previously shortly discussed, began to occupy a prominent place among the professionals who work with older people and between people themselves senescent (Brasil *et al.*, 2006, Grahm *et al.*, 2009). Among these, frailty or weakness closely linked to the ageing process comes with great emphasis. It is estimated that 10 to 25% of people over 65 years and 46% of above 85 years are considered vulnerable by giving them high risk for adverse clinical changes (Brasil *et al.*, 2006, Wu IC *et al.*, 2009). The term frailty has no agreed definition (Rockwood *et al.*, 1999; Brasil *et al.*, 2006; Hilmer *et al.*, 2009) and potential descriptions for the condition spread rapidly, being propagated often synonymous with disability, comorbidity or advanced age (Rockwood *et al.*, 1999; Fried *et al.*, 2001; Lang *et al.*, 2009). Despite this and with the deepening of the issues surrounding this change, from the 90 such associations began to be questioned on three major areas: not all people with functional decline are fragile; not all people have fragile functional decline; and preventive measures appear to interfere with the installation of this syndrome. The concept of “Being fragile” was gradually replaced by the condition of “becoming frail” and essential items to the understanding of the entity have been standardized (Brasil *et al.*, 2006). “Fragile” has a variety of clinically relevant vernacular meanings as easily broken or destroyed, that probably fails or dies quickly; unusually susceptible to disease or illness, lack of normal strength, weak, thin, light, among others. Some professionals have defined fragility as a biological syndrome of physiological systems and resistance to stress, resulting in cumulative declines in multiple

physiological systems and causing vulnerability to adverse effects (Fried *et al.*, 2001). Others simply characterized it as a subset of the weakest and most vulnerable elderly (Lang *et al.*, 2001).

### **After all, what is frailty?**

Different perspectives are found in the literature to understand the fragility. However, perhaps it is not so complex to understand the cause of so much variation. There are different models of fragility, based on different multidimensional constructions and other aspects that not only involved in activities of daily living (ADLs), and recruitment of a heterogeneous group of elderly. Such models can represent the fragility of different trajectories or paths to adverse outcomes, such as disability or even death (Lang *et al.*, 2001, Cigolle *et al.*, 2009). Sales (2009) describes the fragility as the result of the accumulation of charges of chronic and / or multiple co-morbidities over time. Lang *et al.* (2009) only reported that frailty is a lengthy process of increasing vulnerability, predisposing to functional decline and is capable of causing death. The fact is that the definition of frailty has evolved over the years from a description of a more dynamic model both in terms of physiological, as well as psychosocial aspects. In geriatrics, a central definition of frailty is a clinical state of vulnerability to stressors (Fried *et al.*, 2005). The International Classification of Impairments, Disabilities and Handicaps (ICIDH) presented by the WHO in 1993, led later to the International Classification of Functioning, Disability and Health (ICF), which enabled to define and standardize these three concepts directly related to ageing and, indirectly, to better understand the process of frailty (WHO, 2001; Fabricio, 2008). Disability is described as an abnormality in the organs, systems, functions and / or body structures. It represents the outward manifestation of a pathological condition reflecting an organic disorder and / or a disturbance to an organ. Disability is the set of consequences of inability in a way, that is, performance on activities. Finally, the disadvantage is presented as the individual's adaptation to the environment and result of disability and disability that limits or prevents the achievement for that individual, with certain tasks. In its update, ICF did not include more the term disability, but rather concepts of disability and functionality, where the first results from the dysfunction

of reflex and limiting their activities (WHO, 2001). Definitely, frailty is not synonymous with comorbidity and / or disability (Fried *et al.*, 2001; Rockwood and Hubbard, 2004; Lang *et al.*, 2009).

Currently, the definitions of frailty are grouped into two different vectors, represented by two major research groups on the subject, one in U.S. and the other in Canada (Fabricio, 2008; Heppn Stall *et al.*, 2009). The first relies strictly on physiological basis, using data from a study of cardiovascular health and adopts the hypothesis that frailty is a syndrome that can be identified with a phenotype, established by Linda Fried and his team at John Hopkins University, where they worked on the proposal of criteria to define measurable objectives frailty in elderly people, considering five criteria. Fragility was then defined as a syndrome in which three or more of the following criteria are present: 1 - unintentional weight loss (4.5 kg or 5% of body weight in the last year), 2 - self-reported exhaustion (issues of the Depression Scale of the Center for Epidemiologic Studies - CES - D) 3 - weakness (measured by the ability of hand grip strength), 4 - low walking speed (slow - measured by a measure of 4.5 Qualifying meters (adjusted according to gender and height), and 5 - low physical activity (verified by the Minnesota Leisure Time Activities Questionnaire). There is a growing consensus that the markers of frailty include age associated decrease in performance for the activities and that several of these components are presented in a clinic. Many of these factors are interacted and could, theoretically, a cycle of frailty associated with the decline in energy capacity and reserve. The key elements of this cycle are those commonly identified as clinical signs and symptoms fragility. It is also possible that the fragility reduces the reserve capacity of physiological systems, leading to loss of functional homeostasis to withstand stressors and vulnerabilities. After applying the phenotype, a prevalence of the syndrome was observed in 6.9% of the people and incidence of 7.2% in four years, with prevalence among women (Fried *et al.*, 2001; Fried *et al.*, 2005; Brasil *et al.*, 2006; Al Snih *et al.*, 2009; Dupre *et al.*, 2009; Gu Kang *et al.*, 2009; Heppn Stall *et al.*, 2009; Masel and Graham, 2009; Reiner *et al.*, 2009; Robinson *et al.*, 2009).

The second definition of frailty incorporates a more holistic approach and not just considering clinical and physiological measures, but also psychosocial factors and vulnerability. In 1994, Rockwood et al. reached a dynamic model of frailty based on a complex interaction between active components and deficits of a person such as age, gender, lifestyle, socioeconomic status, co-morbidities and sensory or cognitive disabilities. Weakness is seen as the functional loss of homeostasis, which is the ability of an individual to withstand illness without loss of function and translated during the process of weakness, when there is a reduction in physiological reserves (Rockwood, 1994; Grahm *et al.*, 2009; Lang *et al.*, 2009). The scope of this definition of frailty supports the content validity of the model. The criterion validity is established on the assumption that the model predict relevant outcomes such as death, use of health services to long-term (acute care) and dependence on carers for routine activities at home or in institutions, through important variables. Restricted mobility is strongly associated with an increased risk of death, even when it does not interfere significantly in ADL. Several measures of social support were independently associated with the risk of mortality, as the level of caregiver stress and poverty (Rockwood, 1994). Later, in 2002, this definition was supported by the Canadian Initiative on Frailty and Aging (CIFA), a research group established in Canada that works in cooperation with other countries in Europe, Israel and Japan. For this group, the definition the phenotype of frailty is accepted, however, do not consider it very useful for people in whom, vulnerability related to health can not be so easily separated from cognition, mood and social support (Rolfson *et al.*, 2006).

### **Pathophysiology of Frailty**

Regarding the decline in homeostatic reserves, three stages of the process of frailty can be described: a pre-fragile process, state of fragility and complications of frailty (Lang *et al.*, 2009). The pre-fragile is clinically silent, corresponds to the physiological state in which the reserves are sufficient to allow the body to respond adequately to any insult such as acute illness, injury or stress, with a chance of full recovery ability to withstand stress and vulnerabilities. The perception of the state of fragility is principally used by the hypothesis of physiological decline

of adaptive capacity resulting in an inability to tolerate stress, such as surgery, infection or injury. The start of a “cycle of fragility” is the accumulation with aging, the effects of lack of exercise, poor nutrition, unhealthy environment, injuries, diseases and drugs (recreational, social and medicines). These interrelated factors leading to chronic malnutrition, consolidated changes related to age, causing bone loss, and skeletal muscle mass, defined as sarcopenia. Sarcopenia is the process by which the degenerative loss of muscle mass and strength with ageing occurs, resulting in an increased sense of effort for a given exercise intensity (Kim *et al.*, 2009). The Lactate Threshold of an individual increases with age, forcing older people to use a higher percentage of organic compound to perform exercises. So with the increased perception of exercise stress, such individuals are more likely to avoid it (Lang *et al.*, 2009). The vicious cycle then begins. With regular physical activity being reduced with age, there is an adaptation of the regulation of physiological systems to reduced exercise and higher levels of stress. With age, there is also the decline of the general reserve of cardiovascular, as well as a reduction in the maximum volume of oxygen, items that enhance the perception of effort required for a particular task when compared to younger patients (Fried and Watson, 1998; Lang *et al.*, 2009). Moreover, the physiological changes result in a significant decrease in metabolism and a reduction of total energy expenditure. Some features are strong markers of frailty, such as malnutrition, functional dependence, prolonged bed rest, pressure sores, disorders of gait, generalized weakness, age > 90 years, weight loss, anorexia, fear of falling, dementia, fractures, sarcopenia, delirium, confusion and breathing fresh air infrequently. There are also strong molecular mechanisms involved in the process of frailty. During the “Research Agenda for Frailty in Older Adults: Towards a Better Understanding of Physiology and Etiology”, held in Baltimore in January 2004, a question was also raised of the evidence that there is an alterations in mitochondrial function in many types of tissues as a possible causative mechanism of fragility. Interactions between clinical investigators and researchers involved in studying the basic biology and genetics of ageing, allowed the validity of this concept (Fried *et al.*, 2005).

Finally, the complications of the process of frailty are related to physiological vulnerability resulting from impaired homeostatic reserve and subsequent reduction of the body's ability to withstand stress, being described as high risk of falls, functional decline leading to disability, polypharmacy, cross infection, hospitalization and death (Fried *et al.*, 2001; Fried *et al.*, 2005 and Lang *et al.*, 2009). In the context of fractures, frailty represents a considerable share of the total number of orthopedic surgeries performed for this cause. A recent study suggested that about 30% of the fractures in male and 66% of fractures in females were due to fragility fractures (Courtbrown and Clement, 2009). This represent the leading cause of fatal and nonfatal among people aged over 65 years, where women have 50% more likely to report than that men (Courtbrown and Clement, 2009; CDC, 2006 and CDC, 2008). Among the traditional risk factors for falls, the nature of the descent, the impact of the fall, and especially bone fragility are major determinants for a fracture to occur (Berry and Miller, 2008). Falls are associated with greater functional decline, social isolation, anxiety and depression, and greater use of medical services. Fear of falling is common among the elderly and is associated with reduced mobility and decreased functional status. As a result, older people who already had a fall are at greater risk of becoming institutionalized. Although falls related to injuries is not one of the most leading causes of death, accidental falls are the leading causes of death in people over 65 years of age. Death related to falls increases with advanced age and greater number of comorbidities. There is some evidence that sarcopenia and malnutrition would be responsible for a significant reduction in metabolism and total energy expenditure (Lang *et al.*, 2009). The biology of sarcopenia remains elusive. Several mechanisms have been proposed to explain the change in muscle mass, including: lack of regular physical activity, changes in protein metabolism, changes in the endocrine environment, oxidative stress, inflammation (confirmed by biological markers, such as increased count white blood cells, interleukin-6 and C-reactive protein), altered gene expression and apoptosis (Rockwood *et al.*, 1994; Fried *et al.*, 2005; Kanapuru and Ershler, 2009; Lang *et al.*, 2009; Masel *et al.*, 2009). Furthermore, in relation to biological markers of frailty, according to the phenotype, it was observed that C-reactive protein,

fibrinogen, factor VIII and D-dimer were significantly increased in frail elderly (Fried *et al.*, 2001; Kanapuru and Ershler, 2009; Lang *et al.*, 2009).

### Assessing and recognizing the fragility

Despite a clear trend regarding the standardization of topics inherent fragility, as well as its own definition, the creation of so many scales to measure it still reflects some uncertainty about the term and its components. The ability to measure frailty is useful in terms of health policies, as well as clinically. Information regarding fragility help devise targeted programs, identifying the range of services that may be required and the anticipated need for them. Furthermore, stratifying the condition of frailty can also predict the risk of death or hospitalization of a patient. It is, indeed, the need of the hour to find instruments that propose to measure the fragility in the elderly (Fabricio, 2008).

Using data from the Cardiovascular Health Study, Fried *et al.* (2001) conducted a study involving 5317 residents of four U.S. communities aged less than 65 years, using the phenotype of weakness created by the group. The prevalence of frailty in that population was 6.9% and was associated with African-American ethnicity, low socioeconomic status, low education, poor health status, female sex, comorbidities, chronic non-communicable diseases and disabilities. The results support the hypothesis that there is a cycle of fragility represented by a spiral, potentially decreasing the energy reserve of multiple systems, explaining the conditions of weakness, weight loss and abnormal gait.

The concept of frailty is multidimensional, heterogeneous and unstable. Another clinic proposal in order to facilitate the assessment of the fragility was prepared as Edmonton Frail Scale (EFS). EFS was recently validated and deemed reliable and feasible for daily use by even non-specialists in geriatrics and gerontology, for fast implementation (Rolfson *et al.*, 2006 and Fabricio, 2008). The 158 participants were at least 65 years of age and were recruited from a reference population for comprehensive geriatric assessment in July 2000 in intensive care wards, rehabilitation units and outpatient clinics in Edmonton, Alberta, a major center Canadian metropolitan (population one million). The EFS

has 10 fields, the maximum score is 17 and represents the highest level of fragility. Thus, their results would be compared to a clinical impression of experts in geriatrics, following an extensive evaluation. A significant correlation with the results of the assessment of experts, and age, but not with sex. The EFS showed good reliability ( $k = 0.77$ ,  $P = 0.0001$ ,  $n = 18$ ). Its internal consistency using Cronbach's alpha was 0.62. Moreover, the time required for its administration was  $<5$  min, and reported it to be acceptable by the investigators and study participants (Rolfson *et al.*, 2006). Fabricio-Wehbe (2008) held cultural adaptation of the EFS for the Portuguese of Brazil, and have examined its psychometric properties in a sample of an elderly community in the State of São Paulo. In all three administrations of the scale, internal consistency (Cronbach's alpha) of items of the EFS was  $T1 = 0.62$ ,  $A1 = 0.62$  and  $T2 = 0.54$ . It was concluded that the adapted version of the EFS for the Portuguese proved valid and reliable in this sample.

There are some definitions for fragility as operationalized which are based on rules (e.g. a person defined as fragile make up at least 3 of 5 criteria) and that makes a sum of the number of disabilities (Rockwood *et al.*, 2002). Thus, Rockwood *et al.* (2005) developed a range of clinical fragility, from a Canadian study, entitled Canadian Study of Health and Aging (CSHA). The CSHA is a cohort of 5 years and the first stage of research began in 1995 with 10,263 people 65 years or older, for a better description of the epidemiology of cognitive impairment in elderly Canadians. For a better definition of the component items of this scale, researchers have previously developed an index of fragility, based on rules, which has 70 clinical deficits. After that, the scale was developed for clinical fragility, with the goal of creating tools that can stratify elderly regarding their level of vulnerability. This scale has a score ranging from 1 (robust health) to 7 (complete functional dependence of third parties). The degree of correlation between the assessment scale based on the CSHA and the mathematical model derived from the frailty index was high (Pearson coefficient 0.80,  $p < 0.01$ ), confirming the construct validity. Both also showed similar correlation with age (0.35 and 0.29, respectively), 3ms measure of cognition (0.58, 0.59), the Cumulative Illness Rating Scale, which measures the comorbidity

(0.43, 0, 48); CSHA the score function (0.78, 0.74), and the definition of fragility based on rules (0.67 and 0.65, respectively). Reliability between the scale and the index was high (intraclass correlation coefficient 0.97,  $p < 0.001$ ). Furthermore, the ROC curve analysis for the index and the scale showed similar areas between the curves and the best result achieved was a short-term mortality (18 months), with an area under the curve of 0.77. In multivariate analysis adjusted for age, sex and education, each item increased in scale, represent a significantly increased risk over the medium term. Participants with higher scores on this scale were older, female and had cognitive dysfunction and incontinence.

### Can Fragility be prevented?

Weakness can be profoundly different from the concept of ageing as it can be prevented and possibly reversed (Fried *et al.*, 2001). Whereby fragile is a progressive syndrome that begins with a pre-clinical phase, there are opportunities for early detection and prevention (Fried *et al.*, 2005). With the recognition of the clinical state of fragility, validated rehabilitation programs are able to postpone or reduce its serious consequences, such as functional decline and death. However, to have relevance in clinical practice, these features are due to its easy use in clinical settings and to be reliability (Lang *et al.*, 2009). Physical and cognitive problems are strong components of frailty, however, interventions in individuals with dementia when it represents the main cause of progression of the syndrome should not, in principle, be directed and involve ethical and methodological challenges that are specifically addressed in the literature about disease (Ferrucci *et al.*, 2004). Nevertheless, consistent with the approach of Fried *et al.* (2005) about the fragility, a model for global clinical measure of frailty was developed and validated. This model is reliable and feasible for use in clinical research, therefore, quite feasible in a clinical context, in which one can measure grip strength, walking speed and physical activity, as well as knowledge of the underlying population distributions of these measures, which also vary with sex and body size (Lang *et al.*, 2009). Ferrucci *et al.* (2004) reports that although randomized controlled trials (RCTs) have recently shown promising results, there is a still small number of

new studies and RCTs of interventions that could prevent or delay frailty in older persons are urgently needed for assessment, for example, new drugs, environmental modifications, specialized services, surgery, prosthetics and nutritional supplements, among others. Systematic reviews on these interventions are highly recommended because it would help establish what would be more reliable and effective. Perhaps for this reason, there is still no consensus on a comprehensive assessment tool of the state of the syndrome for subsequent referral to a specific treatment. Based on the results of some clinical trials, physical activity (in particular, activities, strength and balance, and resistance training) apparently has the greatest potential to improve physical function.

### Conclusions

It is possible that the fragility reduces the capacity of physiological reserve of systems, leading to loss of homeostasis to support functional stressors and vulnerabilities. Specific scales of frailty in the elderly have been created and validated. However, it is essential to observe its clinical feasibility. Many times, an assessment can be accomplished at the bedside, on beds in wards and intensive care units. It is, therefore, important that such scales can not be used by professionals and specialists in geriatrics and gerontology are subject to rapid application. As previously mentioned, frailty is not synonymous with old age or ageing, it can be prevented or even reversed. With the recognition of the clinical state of fragility, validated rehabilitation programs are able to postpone or reduce its serious consequences, such as functional decline and death, except in the cases where there is the presence of dementia and this represents the main cause of progression syndrome. Anyway, intervention programs targeted to the frail elderly must be supported in randomized clinical trials, and are shown to be easily used in clinical settings. Systematic reviews on these interventions are highly recommended because it would help establish what would be more reliable and effective. Based on the results of some clinical trials, physical activity (in particular, activities, strength and balance, and resistance training) apparently has greatest potential to improve physical function.

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## **Low Bone Mineral Density among Women : A Threatening Sign of Geriatric Osteoporosis**

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### **ABSTRACT**

*Osteoporosis, a silent disease causing brittle bones, affects every third woman and eighth man over the age of fifty. By the year 2050, it is estimated that 6.20 million hip fractures will occur world wide due to osteoporosis. The WHO defines osteoporosis as bone mineral density (BMD) levels more than 2.5 SD below the young normal mean. In the Indian scenario, women both rural and urban are ignorant about the gradual bone loss in their life time. In this context, the present research aimed at bone density assessment among middle aged and aged women (120 members) of 35 - 70 years age through ultra sound bone densitometry to predict current and future risk of geriatric osteoporosis. The findings revealed that 51.7 % women suffered from osteopenia and 30.8 % with osteoporosis against the 17.5 % of women with normal BMD levels. It was interesting to find that no women above 55 years age had normal BMD values indicating that elderly women were either osteoporotic or osteopenic. Among elderly (>55 years), 60% of them suffered from osteoporosis. The current low BMD levels emphasized the need of proper nutrition and health education to reduce the future risk of geriatric osteoporosis.*

**Key Words:** Geriatric osteoporosis, Bone Mineral Density, Ageing, Body Mass Index, Menopause, Elderly.

Osteoporosis is characterized by skeletal fragility, represents a main degenerative health problem, especially in post-menopausal women. About 40 percent of women aged 50-75 years will be affected by fractures due to osteoporosis, 35 percent of which will be vertebral related, making vertebral fractures the most common complication of osteoporosis. It is a disease of ageing. Ageing is one universal factor

that brings a risk of osteoporosis and fractures among elderly women (Liu *et al.*, 2004). In addition to age, female gender and menopause, body weight and body mass index (BMI) were associated with bone mineral density (BMD) and fracture risk

The life span of an average Indian has also increased and this contributed to the increased incidence of geriatric osteoporosis. In India, it is projected that by the year 2030, the population of postmenopausal women will be the second highest in the world. Thus, the burden of osteoporosis in the Indian scenario will also be immense. An estimated 61 million people in India are reported to be affected by osteoporosis (Goswami *et al.*, 2000). Bone mineral density testing is the preferred method to diagnose osteoporosis. Hence, the present study is focused on estimation of bone mineral density among adult and aged women to assess the prevalence of low bone mineral density.

### Materials and Methods

The out patient women above 35 years of age from Tirupati urban, semi-urban and nearby rural areas were enrolled for testing of bone mineral density BMD campaigns at the local orthopedic hospital. The relevant information was collected through structured schedule and undergone for anthropometric measurements. Three different age groups viz. 35-45 years, 46-55 years and 56-70 years were purposively selected. A group of 40 women in each age group was studied which comprised of total 120 women subjects in the present experimental study.

**Menopausal Status:** The status of menopause was obtained from the women subjects through interview. During this research period, both women with natural menopause due to cessation of menstruation on ageing and artificially induced menopause through surgical removal of either ovaries or uterus were considered as the postmenopausal women and the rest of the women experiencing menstrual bleed were considered as pre-menopausal women.

**Bone Mineral Density (BMD):** Bone mineral density was analyzed through portable ultrasound bone densitometry and evaluated bone status of each individual based on WHO criteria in terms of BMD t-score standard deviation (SD) against the young normal mean. The women containing BMD t-score up to -1.0 SD was considered as normal, -1.0 to -2.5 SD t-score as osteopenia and below -2.5 SD as osteoporosis.

Thus the women were categorized into three groups based on BMD t-score viz. normal, osteopenic and osteoporotic women.

**Body mass index (BMI) :** The heights (cm) and weights (kg) of women were taken using graduated height scale and a calibrated balance –beam scale respectively and calculated the index, BMI by using the formula  $\text{weight (in kg)} / \text{height}^2 (\text{m}^2)$ . Based on BMI scores, the women were categorized as under weight ( $<20 \text{ kg/m}^2$ ), normal weight ( $20\text{-}24.9 \text{ kg/m}^2$ ), overweight ( $25\text{-}29.9 \text{ kg/m}^2$ ), obese ( $30\text{-}39.9 \text{ kg/m}^2$ ) and severely obese ( $>40 \text{ kg/m}^2$ ) (Bainbridge *et al.*, 2004)).

**Statistical Analysis:** The data obtained were subjected to statistical analysis using SPSS 11.0 version. The experimental data on BMD was analyzed in relation to age, menopausal status and BMI for statistical constants F-ratio and t-value. The effect of the variables, age and body mass index on BMD was tested through ANOVA and menopausal status on BMD through t-test values.

### Results

The bone health status of the women group is evaluated through bone mass analysis with the association of age, menopausal status and body mass index of women recruited in the study.

**BMD in relation to age:** Based on the findings of BMD t-score SD, each age group was categorized into normal, osteopenic and osteoporotic women, separately. Both osteopenia and osteoporosis are treated as the conditions of low bone mineral density indicating relatively poor bone health. Distribution of the extent of low bone mass in each age group as the age advanced is shown in the Table 1.

The data clearly indicated that the incidence of osteopenia and osteoporosis is increased as the age advanced. It is to be noticed that all the three age groups women had lower mean BMD values. None of the respondents in the younger age (35-45 years) suffered from osteoporosis but majority, as high as 70 percent had osteopenia due to poor nutritional status and changing lifestyle pattern. In the age group of 46-55 years, the percentage of normal BMD t-score and osteopenia shifted to osteoporosis. This was a very remarkable observation need to be noticed that the proneness to osteoporosis increased significantly even by 45 years of age onwards and the prevalence is increased with

advancing age. The important finding needed to be focused during the current analysis was that absolutely no women had normal BMD value and seemed to be either osteopenic or osteoporotic representing very low bone mass in the geriatric women.

**Table 1 : Distribution of osteopenic and osteoporotic women based on bone mineral density (BMD) in relation to age**

Age group (years)	Findings of BMD t- score		
	Normal	Osteopenic	Osteoporosis
35-45 (n=40)	12(30.00)	28(70.00)	0(0.00)
46-55 (n=40)	9(22.50)	18(45.00)	13(32.50)
56-70 (n=40)	0(0.00)	16(40.00)	24(60.00)
N= 120	21(17.50)	62(51.70)	37(30.80)

Values within parenthesis indicate percentage

The effect of age on BMD is expressed through statistical analysis by F-test. The results from the Table 2 showed highly significant difference at 1 percent level. This was attributed mainly due to the lowered bone mass as the age advanced showing inverse relation on bone strength with the increasing age.

**Table 2 : Effect of age on bone mineral density (BMD) t-score among the women subjects**

Age group	Number (n)	BMD t-score (Mean ± SD)	F-ratio
Age (years)			
35-45	40	-1.39 - 0.51	33.094 *
46-55	40	-1.98 - 0.80	
56-70	40	-2.58 0.59	

\* = Significant at 0.01 level

The changing trend on bone mass with the progressing age is denoted graphically in the Fig1. Though the sample size was small, the trend of results appeared to be representative where the BMD curve had undergone a linear degradation of bone mass as the age increased.

Lower bone densities dramatically increased from younger to middle age and further to the aged women indicating a threatening sign of osteoporosis in the geriatric women.

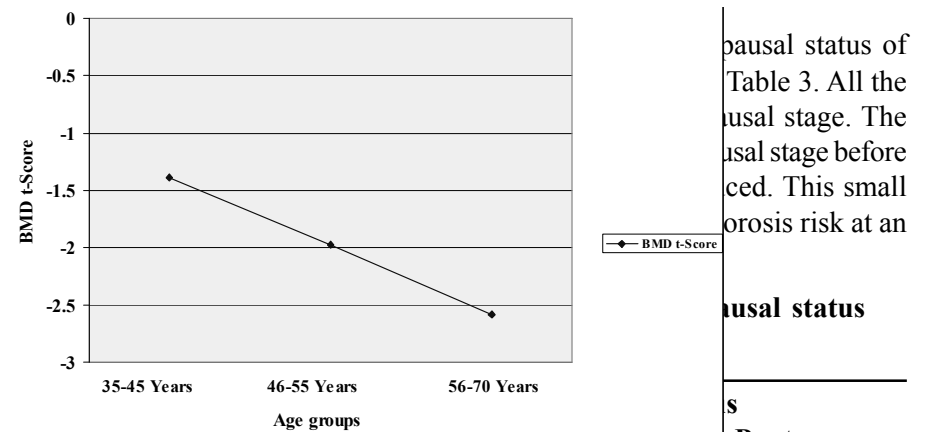


Fig.1: Changing trend of BMD on ageing among women subjects

56-70 (n=40)	0 (0.00)	40 (100.00)
N= 120	29 (24.17)	91 (75.83)

Values within parenthesis indicate percentage

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The statistical analysis on menopausal status against bone density showed a significant difference at 5 per cent level (Table 4). Post menopausal condition, the natural biological change on ageing was found to be the major risk factor of osteoporosis.

**Table 4 : Effect of menopausal status on bone mineral density (BMD) t-score among the women subjects**

Menopausal Status	Number (n)	BMD t-score (Mean ± SD)	t-value
Menopausal status			6.713*
Pre-menopausal	29	-1.35 0.50	
Post-menopausal	91	-2.19 0.78	

\*= Significant at 0.01 level

The BMD t-score from the Fig. 2 revealed that the bone mass was reduced drastically among the postmenopausal women. The post menopausal osteoporosis prevalence was an indicative sign of the onset of geriatric osteoporosis.

**BMD in relation to BMI:** Age wise distribution of experimental subjects in relation to BMI was represented in the Table 5. It was observed that around 50 percent of women belong to normal category, 15 percent to underweight and the rest of 35 percent belong to overweight and obese. None of the respondents found to be severely obese either in the aged or in adult women category studied.

**Table 5 : Distribution of women based on body mass index (BMI)**

Age group (years)	Body mass index (kg/ m <sup>2</sup> )			
	Under weight (< 20)	Normal weight (20-24.9)	Over weight (25-29.9)	Obese (30-39.9)
35-45 (n=40)	5(12.50)	22(55.00)	5(12.50)	4(10.00)
46-55 (n=40)	7(17.50)	16(40.00)	14(35.00)	3(7.50)
56-70 (n=40)	7(17.50)	19(47.50)	9(22.50)	5(12.50)
N= 120	19(15.83)	57(47.50)	32(26.67)	12(10.00)

Values within parenthesis indicate percentage

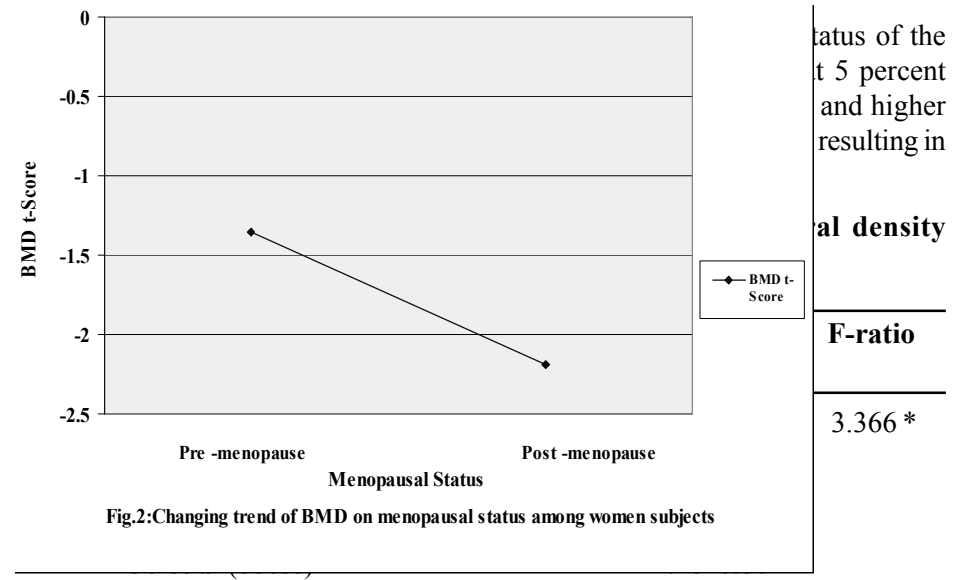


Fig.2: Changing trend of BMD on menopausal status among women subjects

\* Significant at 0.05 level

The trend of results from table 6 focused that both the women with underweight suffering from chronic energy deficiency and women from overweight and obesity were more prone to osteoporosis. It was also to be noted that women with normal BMI scores (20 to 24.9) also had lower levels of mean BMD (-1.75) denoting poor bone health status among the middle aged and elderly women.

## Discussion

Aging is a natural process. As the population of ageing increases progressively in the near future, osteoporosis should be considered as a disease of vast importance. Osteoporosis is raised mainly due to the lowered bone mass. Bone mineral density techniques are the most appropriate tool for screening the lower bone mass cases. The most feasible and affordable method of quantitative ultrasound bone densitometry is employed during the present study.

The results of the bone mineral density technique analyzed showed the higher prevalence of lesser bone strength with the advancing age. The highly significant F-ratio value indicated that with the 10 years of advancing age, no one in elderly had normal BMD t-score and all 40 women of the experimental subjects of above 55 years were suffering either from osteopenia or osteoporosis. Elderly women group found to be the major sufferers of osteoporosis, because the female population was the most vulnerable section neglected since birth with inappropriate nutrition and health care. The lower bone density levels even among middle aged clearly indicated a remarkable threatening sign of geriatric osteoporosis. To protect bone mass, the women at this age really require supplements of adequate macro and micro nutrients especially with protein, calcium, vitamin D, vitamin K, isoflavones and hormone therapy.

Experiencing menopause was the next strongest predictor of loss of bone density with aging. Rapid bone loss was noticed in the post menopausal women group examined for bone mass testing. Endocrine regulation of bone mass is the major factor related to bone metabolism that deserved separate consideration. Estrogen is essential for reaching peak bone mass and for maintenance of bone mass. Estrogen deprivation generally found among postmenopausal women is considered as the principal cause of postmenopausal osteoporosis accelerating bone loss. Several studies supported that postmenopausal osteoporosis is the

commonest and most preventable of all varieties represented (Bainbridge *et al.*, 2002; Shah *et al.*, 2004).

The early menopause before the age of 45 years required early detection of bone density as the estrogen deficiency might occur at an earlier age resulting in faster bone loss. Early detection of low bone mass may be useful to employ interventional measures before worsening the bone strength and to minimize the risk of geriatric osteoporosis.

Menopause is an unavoidable biological change and thus the women should start concentrating on the measures at an earlier stage which are helpful in maintaining bone density such as proper diet, adequate maintenance of body weight and appropriate physical exercise along with supplements of calcium and/or isoflavones.

The underweight women had the minimum BMD values than the overweight and normal category of women denoted maximum risk among the women with thin body frame. These women are at greater risk of osteoporosis than those with larger bones. Also their lower body weights put less stress on their bones throughout life, which is a disadvantage rather than an advantage in terms of osteoporosis risk because such stress on the bones causes them to increase in density. This effective health advantage reduces risk of osteoporosis and is associated with the presence of a significant amount of body fat (Rico *et al.*, 2002). Fat also helps to produce the hormone estrogen which has been proven to slow the loss of bone. Very low body weight is associated with lower peak bone mass development in the young and increased bone loss and risk of fragility fractures in older age.

The increasing body weight had a protective effect to some extent but too much overweight and obesity was also noticed as risk factors. This represented the importance of maintaining optimal weights around 50-60 kg for their heights throughout lifetime to restore bone density. Similar results were observed by Ijuin *et al.* (2002). In overweight adults who are restricting energy (calorie) intake in order to lose weight should take prudent measures to prevent bone loss ensuring sufficient intake of calcium and vitamin D, taking weight bearing physical activity, and avoiding 'fad' diets in which whole food groups are eliminated.

The results of the present study showed a distinct incidence of low bone mineral density among the women due to varying causes indicating that osteoporosis was a multifactor preventable bone disorder. A matter of great concern is that although the effects of osteoporosis are seen in elderly population particularly women, the roots of osteoporosis are laid down earlier in life. Thus, osteoporosis has been described as a condition dealt with by the geriatrician but with its roots in pediatrics. Hence, proper nutrition and health education is of utmost important to women to reduce the incidence and consequences of geriatric osteoporosis.

The major findings of the study are briefly indicated below

- A marked decrease in BMD levels as the age advanced indicated a threatening sign of geriatric osteoporosis.
- Osteoporotic condition was initiated in the age group of 46-55 years and was predominant in the aged group of 56-70 years.
- The elderly women had either osteopenia or osteoporosis without any normal BMD values represented greater osteoporosis risk in geriatric population.
- The BMD values on menopausal status represented that post menopausal women were more prone to osteoporosis than premenopausal women.
- The results implied that the abnormal weight categories viz., underweight, overweight and obese suffered more from either osteopenia or osteoporosis denoting the importance of maintaining adequate body weight for their heights.

### Conclusions

Women are more prone to lower bone mass conditions causing poor bone health status of osteoporosis. Indian women especially are vulnerable to degeneration of bone mass and face risk of bone fractures. Symptoms of osteoporosis are hardly observed until one experienced severe pain and fracture. The Indian women are admitted to hospital only after fracture had occurred. Many including educated are unaware

of the onset of osteoporosis which was a challenging task to educate the community on nutrition and health education for maintaining good bone health status.

Bone density techniques to screening out low bone density condition are not familiarized in the common population. Appropriate government investment is required to develop a screening tool for public awareness campaigns in collaboration with academic institutions, hospitals and expertise in research sector.

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## Early versus Late Onset Panic Disorder : A Clinical Study

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### ABSTRACT

*In patients with panic disorder (PD), it has been clinically observed that there are marked differences in the clinical profiles between early onset panic disorder and panic disorder that first ensues in old age. Late onset panic disorder patients often have a difficulty to identify and manage emotional experiences might contribute to the enduring vulnerability to panic attacks. The contribution of organic dysfunction to such a difficulty cannot be ruled out. The present study was designed to compare patients above the age of 65 years with early and late onset panic disorder and to test the hypothesis that late onset PD subjects show a higher prevalence of alexithymia and cognitive dysfunction. Clinical profiles, symptomatology, alexithymia and general cognitive abilities were assessed in early and late onset PD patients using specific rating scales and measures. Alexithymia was more frequent in patients with late onset PD ( $p = 0.0001$ ). Patients with late onset PD also reported higher trait anxiety and depression scores. Late onset patients reported greater impairment in MMSE scores ( $p = 0.0031$ ) and showed a higher percentage of dissociative symptoms, fear of death, agoraphobia and numbness in their symptom profiles. Late and early onset PD patients differ in various areas of symptomatology, alexithymia and cognition. A better understanding of these profiles will help us plan better individualized treatments to treat both groups effectively.*

**Key words :** Panic disorder, Elderly, Cognitive dysfunction, Alexithymia

Panic Disorder (PD) is one of the commonest anxiety disorders diagnosed amongst psychiatric patients and shows a high prevalence amongst those suffering from medical illnesses too ( Janeway, 2009;

McHugh *et al.*, 2009). PD has been noted across all age groups between 18-75 years with a peak incidence between 20-35 years (Yates, 2009). PD is a common psychiatric diagnosis in geriatric populations too. Effective pharmacologically and psychotherapeutic interventions are available to treat patients with PD but while short-term outcome is generally favorable, the long-term follow-up is often disappointing and suggests an underlying diathesis not targeted by the standard treatments available (Flint, 1998; Shaikh & Cassidy, 2000).

Early onset PD has been defined in studies as panic disorder that is diagnosed between 18-25 years across various studies. Late onset PD is PD with onset after the age of 65 years (Goodwin & Hamilton, 2002). We have persisted with the same definitions for our study. It is well known that patients with PD show heterogeneity with respect to symptomatology, comorbidity and family histories for the disorder (Briggs *et al.*, 1993). It is also well known that depression and anxiety as disorders show marked differences across age groups. Geriatric anxiety disorders are known to differ in clinical pictures and presentations when compared to their adult onset presentations (Vink *et al.*, 2008).

The difficulty to identify and manage a range of emotional experiences might contribute to enduring vulnerability to panic attacks in these individuals. Empirical evidence of poor emotion processing in subjects with PD has been provided and includes the tendency to interpret ambiguous internal and external stimuli as threatening, a high prevalence of alexithymia, a bias toward somatic concerns in stressful situations, poor inhibition and difficulties to establish a relationship between panic attacks and triggering emotional cues (Amstadter, 2008; Graeff & Del-Ben, 2008).

Studies have reported varying impairment in PD. Discrepancies might have been due to the use of different psychological instruments, failure to control for differences in general abilities, and/or the inclusion of patient populations with different characteristics (e.g. medicated or non-medicated, comorbidities) (Bringager *et al.*, 2008; Kalra *et al.*, 2008).



The present study was designed to test the hypothesis that late onset PD patients, as compared with early onset PD, show a higher prevalence of alexithymia and greater severity of illness and symptoms on assessment using proper rating measures.

### Methodology

80 patients each with early and late onset PD were selected for the study. All patients with a clinical diagnosis, with early onset PD (first presentation between 18-25 years) and late onset PD (first presentation after 65 years), having an education of at least HSC visiting the psychiatric outpatient department from January 2008 to January 2010, were asked to participate in the study after a detailed illustration of the study rationale and procedures.

Those who agreed were invited to sign the informed consent form and were then clinically interviewed by the psychiatrist. Patients who met the DSM-IV diagnostic criteria for PD (American Psychiatric Association, 1994) were further assessed to exclude the presence of suicidal ideation, past or present psychotic disorders, major depression, bipolar disorder I or II, obsessive compulsive disorder, alcoholism and/or drug abuse/dependence and dementia. The presence of head injury, epilepsy, hyper- or hypothyroidism, major medical illnesses and continuous use of benzodiazepines during the last 3 months in doses exceeding the equivalent of 1-2mg Clonazepam was ascertained. Patients who were drug-naïve or drug-free for at least 4 weeks were enrolled in the study. Patients suffering from comorbid dysthymia or other anxiety disorders including agoraphobia were included in the study if PD was the main diagnosis.

A structured proforma was used along with a clinical interview to determine age of onset of the PD, socio-demographic data, total duration of illness, symptom profiles and family history of psychiatric illness. After exclusion any psychiatric and medical comorbidity was examined, the following rating scales were used in the study.

**1. Panic Beliefs Questionnaire (PBQ)** – this is a 42 item self report questionnaire used to assess the catastrophic beliefs about panic attacks. Each item is rated on a 6 point scale from totally

disagree to totally agree with higher scores indicating greater beliefs that panic attacks are harmful and dangerous. The PBQ has a high internal reliability ( $\alpha = 0.94$ ) and adequate concurrent validity with other cognitive measures of panic and anxiety (Wenzel *et al.*, 2006).

- 2. Agoraphobia Cognitions Questionnaire (ACQ)** – This is a 14 item self report questionnaire that assesses the frequency of thoughts about the possible negative consequences of the symptoms of anxiety. Subjects score each item on a 5 point scale indicating the frequency of each thought when feeling anxious. It has high internal consistency and adequate test-retest reliability (Chambless *et al.*, 1984).
- 3. Bodily Sensations Questionnaire (BSQ)** – This is a 17 item self report measure that assesses the fear of bodily sensations. Patients respond on 5 point scale from ‘not frightened or worried by this sensation’ to ‘extremely worried’. Higher scores indicate a higher degree of fear. It has a high internal consistency and good test-retest reliability (Chambless *et al.*, 1984; Khwaja 2003).
- 4. The Sheehan Disability Scale** – This has been designed to assess functional impairment in panic patients and is a three item, self rated scale that addresses the impact of symptomatology on work, social and family functioning. It is brief and easily administered (Leon *et al.*, 1992).
- 5. Beck Depression Inventory (BDI)** – Evaluates depression and its emotional, cognitive and motivational components with 21 items. Scores range from 0-63 where 10-15 reflects mild depression, 16-23 reflects moderate depression and 24-63 reflects severe depression (Beck *et al.*, 1988; Beck & Steer, 1993).
- 6. State Trait Anxiety Inventory (STAI)** – It is a self report scale that evaluates anxiety state and anxiety trait separately with questions of 20 items each. Scores range from 20-80 where a score greater than 60 signifies overanxiety (Spielberger, 1984).

- 7. Toronto Alexithymia Scale (TAS)** – This is a self report scale that assesses alexithymia with 26 items. Scores of 11 or more confirm alexithymia while those of less than 11 rule it out. It has been used in a wide variety of settings and cultures and is the only scale used widely in the Asian population (Bagby *et al.*, 1999; Taylor *et al.*, 2003).
- 8. Clinical Global Impression of Severity (CGI-S)** – This is a measure designed to provide an overview of symptom severity and is assessed by the clinician on a 7 point scale from 1 (normal) to 7 (extremely ill) (Guy, 1976).
- 9. Mini- Mental Status Examination (MMSE)** - The mini-mental status examination (MMSE) is a brief 30-point questionnaire test that is used to screen for cognitive impairment. It is commonly used in medicine to screen for dementia. It is also used to estimate the severity of cognitive impairment at a given point in time and to follow the course of cognitive changes in an individual over time, thus making it an effective way to document an individual's response to treatment. Any score greater than or equal to 25 points (out of 30) is effectively normal (intact). Below this, scores can indicate severe (below 9 points), moderate (10-20 points) or mild (21-24 points) (Mowla & Taher, 2006).

## Results

Both groups had no major differences when assessed socio-demographically. The mean age of the early onset PD group was  $23.29 \pm 6.2$  years and that of the late onset PD group was  $68.85 \pm 5.77$  years. No difference was observed when the mean duration of illness in both groups was compared.

On assessing the symptom profile as per DSM-IV in both the groups, similar number of subjects in both groups documented the presence of palpitations, sweating and choking sensations during a panic attack. A greater number of subjects in the late onset PD group reported derealization and depersonalization (57.5%), fear of dying (83.75%), and tingling numbness (80%) as compared to the

early onset subjects. A larger percentage of subjects in late onset PD group (53.75%) reported agoraphobia as compared to early onset subjects (15%). The late onset group also reported a greater number of panic attacks per week (Table 1).

**Table 1 : Sociodemography and symptom profile**

Measure	Early onset PD (n = 80)	Late onset PD (n = 80)
Age of onset	23.29 ± 6.2	68.85 ± 5.77
Duration of illness	3.46 ± 4.58	3.83 ± 5.66
<i>Symptom profile</i>		<i>n (%)</i>
Palpitations	66 (82.5)	63 (78.75)
Sweating	59 (73.75)	51 (63.75)
Trembling / Shaking	34 (42.5)	55 (68.75)
Shortness of breath	48 (60)	56 (70)
Choking	33 (41.25)	38 (47.5)
Chest pain	36 (45)	61 (76.25)
Nausea & abdominal	41 (51.25)	38 (47.5)
Dizziness	12 (15)	51 (63.75)
Derealization		
Depersonalization	21 (26.25)	46 (57.5)
Fear of losing control	22 (27.5)	27 (33.75)
Fear of dying	33 (41.25)	67 (83.75)
Numbness / Tingling	27 (33.75)	64 (80)
Chills or hot flushes	12 (15)	11 (13.75)
Family history of PD	23 (28.75)	33 (41.25)
Panic attacks per week	15-20	25-30
Agoraphobia	12 (15)	43 (53.75)

Scores on the Panic Beliefs Questionnaire (PBQ) and Body Sensations Questionnaire (BSQ) revealed no statistical differences between the two groups. On assessment with the Agoraphobia Cognitions Questionnaire (ACQ), the late onset PD group showed significantly higher scores ( $p = 0.0001$ ). On the Sheehan Disability

Scale, work was affected significantly in the late onset PD group ( $p = 0.029$ ) while both groups showed no differences in effects of PD on social and family life. However, both groups showed high disability scores in these areas (Table 2).

**Table 2 : Rating scales for Panic Disorder and Anxiety**

Measure	Early onset PD (n=80)	Late onset PD (n=80)	t Value	p Value
Panic Beliefs Questionnaire	163.28±56.3	178.81±66.7	1.5914	0.1135
Agoraphobia Cognitions Questionnaire	33.71±11.2	49.53± 25.6	5.0639	0.0001
Body Sensations Questionnaire	56.33±21.2	59.44± 27.8	0.7956	0.4254
Sheehan Disability Scale :				
Work	5.09±3.03	4.03± 3.06	2.2016	0.0291
Social life	6.71±2.47	6.83± 3.66	0.2431	0.8083
Family life	6.33±2.42	6.53± 3.11	0.4540	0.6506
Clinical Global Impression Severity Scale	5.7±2.2	5.9± 3.3	0.4512	0.6526
State Trait Anxiety Inventory :				
State Anxiety Scores	47.3±6.2	46.8±8.1	0.4383	0.6617
Trait Anxiety Scores	43.1±10.2	53.1±16.2	4.6722	0.0001
MMSE Scores	28.9±3.1	26.8±4.6	3.9985	0.0031
MMSE Normal	80	77		
MMSE Impaired	Nil	3		

On the State Trait Anxiety Inventory (STAI), the late onset PD group showed significantly greater trait anxiety scores ( $p = 0.0001$ ) while state anxiety scores were similar across both groups. The late onset PD group also showed significantly lower scores on assessment with the MMSE ( $p = 0.0031$ ) (Table 2).

Greater number of subjects in the late onset PD group showed moderate to severe depression scores on the Beck Depression Inventory (BDI) ( $\chi^2 = 17.8$ ,  $p = 0.0001$ ). Late onset PD patients also showed significantly greater total scores on the BDI ( $p = 0.0138$ ) (Table 3).

**Table 3 : Scores and Profiles on the Beck Depression Inventory**

	Early Onset PD	Late Onset PD		p Value
BDI Depression Levels	N = 80 (%)			
Normal	46 (57.5)	32 (40)	$\chi^2 = 17.8$	0.0001 (df = 3)
Mild	28 (35)	22 (27.5)		
Moderate	6 (7.5)	16 (20)		
Severe	Nil	10 (12.5)		
	Mean ± SD			
BDI Scores	15.8±11.3	21.3 ± 16.2	2.4906	0.0138

\* significant.

(For Depression levels Chi Square test was used).

(For BDI Scores Student t test was used).

A total of 55% of the late onset PD patients scored positive for alexithymia as compared to 15% in the early onset PD group ( $\chi^2 = 26.4$ ,  $p = 0.0001$ ). Late onset subjects also showed significantly greater total scores on the Toronto Alexithymia Scale (TAS) ( $p = 0.0001$ ).

**Table 4 : Scores on the Toronto Alexithymia Scale**

	Early Onset PD	Late Onset PD		p Value
	Mean ± SD			
TAS Scores	9.5±4.3	15.3±5.8	$t = 7.1850$	0.0001
Ratios	N = 80 (%)			
Normal Scores	68 (85)	36 (45)	$\chi^2 = 26.401$	0.0001
Alexithymia Present	12 (15)	44 (55)		

\* significant.

(For the TAS scores student t test was used in the assessment).

(For the TAS ratios Chi Square test was used in the assessment).

## Discussion

It is well known that the symptomatology of PD shows variation across age groups. Palpitations, sweating, breathlessness and chest pain are universal symptoms in most panic attacks (Fava & Mangeli, 1999). It is well known that older patients often report chest pain along with a fear of having a heart attack. True to this fact, elder patients in this study reported chest pain to larger extent than early onset patients (Katerndahl, 2008). Fear of death and dying is a common preoccupation amongst older subjects. A number of elderly subjects reported a fear of dying (Fry, 2003). Dissociative symptoms like derealization and depersonalization are common in panic disorder. Isolated dissociative symptoms are common in old age and may overlap panic attacks (Marshall *et al.*, 2000; Kihlstrom, 2004). Loneliness is common in old age and along with a fear of crowded places leading to agoraphobic avoidance (Kaasa, 1998).

Agoraphobia is a common symptom in patients with panic disorder in old age. It is noted to a greater extent in older subjects as compared to younger subjects with panic disorder (Garvey & Tuason, 1984). Studies have also demonstrated a greater severity of panic attacks and increased frequency of panic attacks in late life panic disorder (Hendriks *et al.*, 2010). Many of these findings were replicated in our study. Cognitive symptoms related to anxiety are also common in old age. Cognitive factors related to anxiety play an important role in the development of agoraphobia and panic beliefs. Panic disorder and agoraphobia in late life is also known to cause impairment in areas related to work, family life and social spheres. This is often doubled with the presence of agoraphobia (Schmidt & Smith, 2005).

Patients with late onset panic disorder are more hypersensitive, anxious, tense and excited easily in situations compared to early onset patients. Anxiety trait scores often reflect an anxious personality type that may be prevalent across the life span and may often be a trigger for anxiety related disorders in late life (Eysenck & Byrne, 1995). Anxiety state rather is a momentary state whereas trait anxiety signifies a longitudinal enduring pattern of anxiety (Taylor *et al.*, 1991).

The findings on the Beck Depression Inventory is in keeping with studies in the past where it has been found that patients with late onset PD are more likely to have depression. It is also known that depression in panic disorder may be a mild depression and at times often below the clinical cut off criteria. It is also noted in longitudinal studies of panic disorder that depression often lasts longer and resolves much slower adding to the general disability involved (Aronson, 1989).

Late onset PD patients reflected greater scores on the alexithymia scale. Alexithymia when introduced first was thought to be seen in individuals predisposed to developing a psychosomatic disorder such as hypertension or bronchial asthma (Taylor, 1984). It is stated that patients with alexithymia are those who do not express their emotions clearly and often present with somatic symptoms, mild to moderate anxiety and depression with atypical features (Lane *et al.*, 1996). Elderly patients often express a similar clinical picture that probably warrants a further exploration and understanding. Alexithymia is today considered a personality trait present in an individual irrespective of actual situational stressors, but one that may influence the response to a stressor (Taylor & Bagby, 2000). Alexithymia is considered to be an integral part of both depression and anxiety states in old age (Lane *et al.*, 1988).

## Conclusions

Panic disorder is common across the life span. It is the commonest diagnosis amongst the anxiety disorders. The alexithymia, somatic symptoms and comorbid depression in elderly patients with panic disorder demands attention and it is essential that we pay attention to the same in our day to day clinical practice when we treat this population along with using novel methods to tackle this issues at both a psychopharmacological and psychotherapeutic level.

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## Functional Abilities of the Aged

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### ABSTRACT

*This paper is a part of the research study entitled 'Changes in ageing: A cohort study' was conducted in Dharwad district of Karnataka state with a sample size of 500 elderly from three age cohorts viz., 60-65, 66-70 and 71+ yrs. The sample is consisted of elderly from both rural and urban area. Interview was chief tool for data collection. A self structured interview guide was prepared and used. The reliability was found to be 0.77. Statistical analysis on socio-demographic profile of the elderly revealed that majority of the elderly were illiterates or had lower level of education. The elderly in the cohort 60-65 had more changes in functional ability than their counterparts from the other two age cohorts. Similar trend was observed when the analysis was carried out by age cohorts and gender, and age cohorts and place of residence. The elderly living without spouse alive were better in functional ability than the elderly living with spouse alive. The elderly in 60-65 group in rural area experienced more changes as compared to their counterparts from other two age cohorts. The association between age cohorts and levels of functional ability was significant.*

**Key words:** Functional ability, Elderly, Age cohorts, Socio-demographic factors.

Old age is like any other developmental stage like childhood, but it is the last stage in one's life. The literature survey reveals that there are significant differences among the elderly with the socio-economic-

demographic backgrounds. Functional abilities in terms of physical, psychomotor, sensory, cognitive, socio-emotional and behavioral functioning are likely to witness a declining trend as the age advances. It is proved that with age, the brain mass decreases and number of brain cells suffer severe reduction. These age related changes have very important consequence on functional abilities. There is an increase in number and longevity from 32 years during independence to 63 years in 2001 and at present India's aged population is approximately 90 million. The graying population faces a number of problems in varying degrees. These problems range from absence of ensured and sufficient income to support themselves, ill health, absence of social security, loss of social role and recognition and to the non-availability of opportunities for creative use of free time. The needs, problems and adjustment patterns of the elderly vary significantly according their age, socio-economic status, health, living status and such other background characteristics. In this background it is indeed essential to throw light on functional abilities of elderly to enable them to know their abilities, so that they can lead independent life. Thus the objectives set for the present study were:

- To study the socio-economic profile of the respondents, and
- To assess the influence of gender, marital status and place of residence to the functional ability of the aged in different age cohorts.

### Methodology

A sample of 500 elderly living in both urban and rural area of Dharwad taluka of Dharwad district in Karnataka state were interviewed to assess the changes in functional abilities. These were divided into three age cohorts to find the changes in particular age cohort.

The functional ability scores included scores obtained from five domains such as Physical Functioning (PF), Psychomotor and Sensory Functioning (PSF), Cognitive Functioning (CF), Socio-Emotional Functioning (SEF) and Behavioral Functioning (BF). To guide the interview, an interview schedule was developed.

On perusal of standardized test, it was felt necessary to develop a comprehensive tool to suit the present study, since the sample of this research could not have responded to those tools that called for higher levels of literacy. The interview schedule thus developed based on scale items from other standardized instruments such as those developed by Revicki and Mitchell (1990), Byrd (1993), Carter *et al.*(1993), Avlund *et al.*(1995), Wolisnky *et al.* (1996), Pershad and Verma (1996), Bhakshi *et al.* (2000), Vaswani (2001) and Hurlock (2002) consisted of 77 items on functional ability excluding 10 items on health status and 14 items on leisure time activities. The interview schedule developed was aimed to assess the functional ability in five domains of daily life activities as described earlier. The total scores of functional ability were calculated based on the total scores of each respondent on each domains as described earlier.

**Summated Scoring:** Based on the raw scores obtained by the respondents in each subset, they were classified into three categories using the formula  $X \pm 0.425 SD$ . The scores ranges and groups of the domains of functional ability are as follows;

**Classification of respondents by scores of domains of functional ability**

Domains of Functional Ability	Levels of Functional Ability		
	Gradual decline towards changes	Some changes	Very Few changes
PF	26-30	61-95	96-130
PSF	11-25	26-40	41-55
CF	13-20	31-46	47-62
SEF	11-26	27-41	42-55
BF	16-37	38-58	59-80

**Scores of Functional Ability (SFA) :** The Scores of Functional ability have been summated by adding the total scores attainable by a

respondent one each domains of Functional Ability, thus the respondents have been classified into threes categories of functional ability using the formula  $X \pm 0.425 SD$ . Thus the categories were

Sl. No	Levels of FA	Scores of Functional Ability (SFA)
1	Gradual decline towards changes (GDTC)	77-181
2	Some changes (SC)	182-182
3	Very Few changes(VFC)	283-386

**Results and Discussion**

Socio-demographic profile of the respondents is presented in table I. A perusal at educational status revealed that in all the three age cohorts, illiterates formed a major group, followed by the respondents who have completed 6-10 years of education and 1-5 years of education. Regarding marital status, a large percentage of them were married and living with spouse and these were followed by widows and widowers.

Employment status revealed that, housewives represented a large group, followed by pensioners (26.2%) and coolies (21.4%). The percentage of elderly in doctor/lawyer category was very meager (1.8%) followed by artisans (3%). The position of head of the family indicated that a large majority reported themselves as head of the family. Very small percentage (1.4%) of the elderly reported others such as brother-in-law/son-in-law/grandson as heading their families and majority of the elderly belonged to low and middle income groups in each of the age cohorts.

Involvement of elderly in leisure time activities revealed that majority of the respondents in all the three age cohorts were moderately involved in leisure time activities.



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

Variables	Age Cohorts							
	60-65 yr.		66-70 yr.		71+ yr.		Total	
	f	%	f	%	f	%	f	%
<b>Education</b>								
Illiterate	103	43.5	56	40.6	66	52.8	225	45.0
1-5 std	37	15.6	28	20.3	21	16.8	86	17.2
6-10 std	63	26.6	29	21.0	28	22.4	120	24.0
11-15 std	20	8.4	15	10.9	6	4.8	41	8.2
15+	14	5.9	10	7.2	4	3.2	28	5.6
<b>Marital status</b>								
Widow	60	25.3	36	26.1	43	34.4	138	27.6
Widower	02	0.8	09	6.5	15	12.0	27	5.4
Married	173	73.6	93	67.4	67	53.6	333	66.6
Divorced	02	0.8	-	-	-	-	02	0.4
<b>Employment status</b>								
HW	75	31.0	28	20.3	36	28.8	139	27.8
Coolie	47	19.8	31	22.5	29	23.2	107	21.4
Artisans	05	2.1	06	4.3	04	3.2	15	3.0
Business	21	8.9	14	10.1	11	8.8	46	9.2
Agriculture	19	8.0	12	8.7	22	17.6	53	10.6
Retd/pensioners	67	28.3	44	31.9	20	16.0	131	26.2
Doctor/lawyer	3	1.3	3	2.2	3	2.4	09	1.8
<b>Position of head of the family</b>								
Self	139	58.6	101	73.2	89	71.2	329	65.8
Husband	63	26.6	14	10.1	9	7.2	86	17.2
Son/daughter	35	14.8	23	16.7	20	16.0	78	15.0
Others	-	-	-	-	7	5.6	7	1.4
<b>Income levels</b>								
Low	95	40.1	58	42.0	46	36.8	199	39.8
Middle	103	43.5	51	37.0	51	40.8	205	41.0
High	38	16.5	29	21.0	28	22.4	96	19.2
<b>Health Status</b>								
Moderate	39	16.5	40	29.0	56	44.8	135	27.0
Good	198	83.5	98	71.0	69	55.2	365	73.0
<b>Leisure time activities</b>								
Poor	74	31.2	36	26.1	50	40.0	160	32.0
Moderate	132	55.7	85	61.6	68	54.4	285	57.0
Good	31	13.1	17	12.3	07	5.6	55	11.0

The changes in functional ability which was classified into three categories based on the total raw scores obtained by the respondents is presented in the following tables.

**Table 2. Distribution of respondents by levels of functional ability**

Age cohorts	VFC		SC		GDTC		X <sup>2</sup>
	f	%	f	%	f	%	
<b>60-65 yr.</b>	01	0.4	100	42.2	136	57.4	53.35*
<b>66-70yr.</b>	02	1.4	85	61.6	51	37.0	
<b>71+yr.</b>	09	7.2	87	69.9	29	23.2	

\* Significant at 1 per cent level

X<sup>2</sup> values of the changes in levels of functional ability by age cohorts have been shown in Table 2. The association was found to be statistically significant at 1 per cent level of probability implying the differences in experiences of changes as a result of aging. Majority of the respondents in 60-65 yr age cohorts belonged to GDTC which indicates that elderly in 60-65 age group were more prone to changes. The elderly from 66-70 and 71+ year had better functional abilities as compared to early age cohorts. The elderly in 71+ age group might have been active from the beginning and tended to be the same, while the 60-65 years group might have experienced more changes because of the use of the technologically advanced equipments which limits energetic participation in any activity and in turn leads to disuse and degeneration (Ganguly, 2000). Avlund *et al.* (1995) found that, the large number of 75 year old managed the tasks without tiredness and without need of help, There was decline in functional ability from 70-75 years. This implies that, as the age increased, the elderly had better functional abilities.

**Table 3. Functional ability by gender**

Age cohorts		Gender					
		Female			Male		
		VFC	SC	GDTC	VFC	SC	GDTC
60-65 yr	f	1	56	75	-	44	61
	%	0.8	42.4	56.8	-	41.9	58.1
66-70 yr	f	1	33	17	1	52	34
	%	2.0	64.7	33.3	1.1	59.8	39.1
71+	f	3	36	16	6	51	13
	%	5.5	65.5	29.1	8.6	72.9	18.6
Total	f	5	125	108	7	147	108
	%	2.1	52.5	45.4	2.7	56.1	41.2
<b>X<sup>2</sup></b>		18.491*			36.224*		

\* Significant at 1 per cent level

The association between changes in functional ability and gender (Table 2) revealed that there is difference between the female elderly in different age cohorts. Gradual decline towards changes were reported by 56.8 per cent of female elderly in 60-65 yr age group, while the female elderly in 66-70 yr and 71+ yr age cohort experienced changes in functional ability in a similar way. The association was found to be significant at 1 percent level. Similarly, among the male elderly 58.1 per cent from 60-65 yr age cohort belonged to GDTC group. In 71+ age group about 72.9 per cent experienced some changes. The percent age of elderly belonging to GDTC group declined as the age progressed in both the gender indicating the elderly in 60-65 yr cohort experienced more changes as compared to elderly from other age cohorts. Similar trend was observed from the table 1. Scores of functional abilities of elderly in early age cohorts were lower than elderly from other two age cohorts irrespective of gender. The association between age cohorts and levels of functional ability was significant at 1 per cent level.

**Table 4. Functional ability by marital status**

Age cohorts		Marital status					
		Without other spouse living			With the other spouse living		
		VFC	SC	GDTC	VFC	SC	GDTC
60-65 yr	f	-	35	29	1	65	107
	%	-	54.7	45.3	0.6	37.6	61.8
66-70 yr	f	1	34	10	1	51	41
	%	0.2	75.6	22.2	1.10	54.8	44.1
71+	f	7	39	12	2	48	17
	%	12.1	67.2	20.7	3.0	71.6	25.4
Total	f	8	108	51	4	164	165
	%	4.8	64.7	30.5	1.2	49.2	49.5
<b>X<sup>2</sup></b>		19.405*			28.294*		

\* Significant at 1 per cent level

The results (table 4) revealed an interesting fact that the functional ability of the elderly living with and without the spouse alive differ significantly. The elderly living with the other spouse alive reported more changes in functional abilities as compared to their counterparts without the other spouse alive in all the three age groups. These results may be attributed to the fact that elderly living with the other spouse alive depend on their spouse for the routine work, while the elderly without the other spouse alive are independent and do their routine work without being asked by others. These results also support the view that, the elderly who were self reliant for their daily routine could continue to do so, as their participation in physical work acted as the source of exercise, while, the others who do not exercise, become frail. This clearly indicates the role of family members to motivate and encourage the elderly to help themselves in order to have physical fitness and be functionally active.

**Table 5. Functional ability by place of residence**

Age cohorts		Place of residence					
		Rural			Urban		
		VFC	SC	GDTC	VFC	SC	GDTC
60-65 yr	f	-	49	27	1	51	109
	%	-	64.5	35.5	0.6	31.7	67.7
66-70 yr	f	-	37	15	2	48	36
	%	-	71.2	28.8	2.3	55.8	41.9
71+	f	6	40	8	3	47	21
	%	11.1	74.1	14.8	4.2	66.2	29.6
Total	f	6	126	50	6	146	166
	%	3.3	69.2	27.5	1.9	45.9	52.2
<b>X<sup>2</sup></b>		<b>19.661</b>			<b>34.952**</b>		

\*\* Significant at 1 per cent level

Changes in functional ability of elderly by place of residence was also significant at 1 per cent level. Majority of rural elderly in all the three age cohorts from rural area were in some changes level. The percentage of elderly belonging to GDTC decreased as the age progressed. This again indicated the fact that elderly in 60-65 group in rural area experienced more changes as compared to their counterparts from other two age cohorts. There was no representation of elderly from 60-65 and 66-70 yrs age cohort in VFC in rural area, while 11.1 per cent the elderly in 71+ were in this level. Similar trend was observed in changes experienced among the elderly from urban area also. The X<sup>2</sup> value was found to be significant at 1 per cent level.

### Conclusion

From the SES profile of the elderly from all the three age cohorts, it may be concluded that majority of the elderly were illiterates, married and living with spouse. Housewives represented the majority. Majority of the elderly reported themselves as head of the family irrespective of the age group. The involvement of elderly in leisure time activities was moderate. Cohort wise analysis of functional abilities with age revealed that, elderly in 60-65 yr age group experienced more changes. Similar trend was observed when the analysis was carried out by age cohorts

and gender, and age cohorts and place of residence. The elderly without the other spouse were better in functional ability than the elderly living with other spouse alive. The functional ability of the rural area was better than their counterparts from urban area. These results imply the need to plan activities to excel physical functioning among the elderly in the age group 60-65 yrs.

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## Psychosocial and Clinical Profile of Patients Diagnosed With Dementia in a Tertiary Care Centre

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### ABSTRACT

*Developing countries are undergoing a demographic transition that more and more persons are surviving to an old age thereby increasing the risk of dementia. Studies of their prevalence rates and determinants are of medical and social importance in planning adequate services as also resource allocation. Thus this study was designed to generate epidemiological and clinical data on dementia, in a teaching hospital of Manipal University in a tertiary care facility in India. This study intends to look into the psychosocial and clinical characteristics of patients diagnosed as Dementia and would compare the Alzheimer's from non Alzheimer's disease on various characteristics. Ninety three cases seen over a 4-year period formed the data of this study. Seventy one cases with complete data were analyzed. Assessments were done by the psychiatric residents in a semi structured interview to generate an ICD X diagnosis and there was consensus about the diagnosis between two independent senior consultants. Of the total sample 51(71.8%) were males and 20(28.2%) females. Thirteen (18.2%) males had Alzheimer's and 5 (7.0%) among females. Thirty eight males (53.5%) and fifteen females (21.3) had a dementia of non Alzheimer's type. The mean age of those with Alzheimer's was 71.6(S.D. 6.3) and non Alzheimer's was 64.3 (+S.D.8.6). There was statistically significant difference between the gender and Alzheimer's vs. non Alzheimer's disease at 0.001. Analysis of the other Sociodemographic and clinical variables such as physical and psychiatric morbidity, substances use, illness onset, course, and family history showed that both the groups varied across several variables such as residence ,socioeconomic status, presence of stressors,*

*substance use physical and psychiatric morbidity, past h/o psychiatric illness and family history of psychiatric illness. The implications are discussed.*

**Keywords:** Dementia; Alzheimer's disease; physical and psychiatric comorbidity; delirium; depression; hypertension; diabetes mellitus.

The ageing of the population has presented new challenges for meeting the rapidly increasing needs of the elderly and has become a global issue. Population ageing is also rising steadily in our country. The proportion of the elderly population has been growing and is predicted to grow further in the coming years. The dementias of late life now constitute a major public health challenge to our society. It is a clinical state in which acquired cognitive decline impairs occupational and social life.

Dementia is one of the commonest and most disabling late-life mental disorders. Its prevalence and incidence have been assessed in developed countries, and show little geographical variation between countries and regions. While more than two-thirds (66 percent) of all people with dementia live in developing countries, little research has been carried out in those settings (Prince 2000). Dementia can be considered as a global Impairment of Intelligence, Memory and Personality, in clear consciousness. It can occur at any age but becomes more frequent with age, with a prevalence of 5%-10% in the over 65s and 20% in the over 80s (Saunders 1993). It is seen more frequently in women, due to their increased longevity.

Less than one-tenth of all population-based research into dementia is directed towards the two-thirds or more of cases living in developing parts of the world. The 10/66 Dementia Research Group has been formed to redress this imbalance, encouraging active research collaboration between centres in different developing countries and between developed and developing countries.

More research is needed to allow developing countries to estimate the current extent, type and cost of medical and social service provision, and to make confident predictions of future need. Research in different cultures with different levels of economic and industrial development

will also increase the variance of environmental exposure, facilitating the identification of environmental risk factors and gene–environment interactions for dementia. Research methodologies need to be adapted to the different circumstances of developing countries, with implications for sampling, cognitive screening and definitive dementia diagnosis.

Another challenge is the lack of awareness and understanding about dementia in developing countries, both in the general population and among healthcare professionals. For example, in India dementia is often perceived as a mere “brain weakness” connected to aging and is infrequently diagnosed by primary healthcare centers. There is a paucity of epidemiological data about dementia in our country where it is ignored and dismissed as a sign of senility.

This study intends to look into the psychosocial and clinical characteristics of patients diagnosed as Dementia in a tertiary care facility and would compare the Alzheimer’s from non Alzheimer’s disease on various characteristics.

### Materials & Methods

All the cases seen in a tertiary care centre of a teaching hospital of Manipal University diagnosed as Dementia according to ICD-10 formed the sample of this study. Ninety three cases were reviewed of which 71, complete in all ways were analyzed. As part of the post graduate training in psychiatry, detailed assessments are carried out by psychiatric residents in a semi structured interview to generate an ICD-10 diagnosis. There is a predefined proforma for this which is routinely used. The intake by the residents is then discussed with usually senior consultants as well as other colleagues of a multidisciplinary team. Prior to the start of the interview the informant was questioned about whether they felt the patient had memory difficulties and if so whether they had a medical evaluation for their memory problems. All the cases had history of dementia as reported by reliable informants. A psychiatrist to confirm the diagnosis of dementia according to ICD-10 criteria reinterviewed these individuals and there was consensus about the diagnosis between two independent senior consultants.

The inclusion criteria were patients with a primary diagnosis of Dementia and also those with other comorbid psychiatric and physical

disorders. Cases with incomplete data were excluded. Details related to sociodemographic and illness related data were taken.

The SPSS statistical package (Windows version 11.0) used for data analysis. Descriptive statistics were used to determine categorical variables and chi square/Fisher’s Exact Test was carried to find the statistical significance across genders on sociodemographic and some clinical variables.

### Results

Ninety three patients with dementia had been seen in this centre. Around seventy one who had complete sociodemographic and clinical details formed the sample for analysis. The results would attempt to compare the Alzheimer’s from non Alzheimer’s disease on various characteristics. All the sub types of other dementia (other than Alzheimer’s) were clubbed as “Non Alzheimer’s” due to small numbers for analysis.

The sample comprised of 51(71.8 %) males and 20(28.2 %) females. Of this 51 males 13(25.5%) had Alzheimer’s and 38 (74.5%) had non Alzheimer’s dementia. Of the twenty females 5(25.0%) had Alzheimer’s and 15(75.0 %) had non Alzheimer’s dementia. Majority were in the non Alzheimer’s type 53(74.6%) and the rest were in the Alzheimer’s category. There was a statistically significant difference between males and females in the Alzheimer’s category ( $p < .001$  level) [Table 1]

**Table 1 : Distribution of Gender & subtype of dementia**

Gender	Alzheimer	Non Alzheimer	Total	X <sup>2</sup>
Male	13	38	51	000
Female	5	15	20	df <sup>1</sup>
<b>Total</b>	18	53	71	1.000

\* $<0.001$

The mean age of the males in the sample was 66.7( +S.D.7.9) with a range 50-85 years. The mean age of females being 64.7 (S.D. + 10.3) with a range of 45-86 years. The mean ages of the males in the sample were slightly more than the females.

In the sample those with an Alzheimer's disease were older i.e., 71.5 (+S.D.6.3) in comparison with the Nonalzheimer's who were 64.3 (+S.D.8.6).

**Table 2 : Age-Gender Distribution of Alzheimer & Non Alzheimer Dementia**

Age (Years)	No. of men		No. of women		Total	
	Alzheimer	Non Alzheimer	Alzheimer	Non Alzheimer	Alzheimer	Non Alzheimer
45-54	0	3	0	4	0	7
55-59	0	8	0	3	3	8
60-64	2	3	1	1	3	4
65-69	1	13	1	3	2	16
70-74	4	7	1	3	5	10
75-79	4	4	2	0	6	4
80-84	1	0	0	0	1	0
85-89	0	0	0	1	1	1
Total	13	38	5	15	21	50

As is evident from Table 2 majority of the Alzheimer's were above 70 years and those with a non Alzheimer subtype were below 70 years of age.

Table 3 depicts the sociodemographic distribution in the two groups. Majority in both the groups were Hindus followed by other religions showing just the general population distribution pattern. There were many married in both the groups and in the non-Alzheimer's group there were about 15.1% widow/widowers. In both the groups about 50% were hailing from the extended families showing that the elderly had some one with them always whether or not the care extended was satisfying, reflecting that in India despite women attaining higher education and entering the labour force, nuclear families may not be in vogue especially in remote and rural regions. However, on chi square analysis there was statistically no differences across the two groups on religion, marital status and the type of family. Majority in the in Non Alzheimer's group hailed from rural and middle class backgrounds and were statistically significant differences across the two groups on these variables. It was also noted that in the second group majority had on an

**Table 3 Distribution of characteristics of the sample**

Variable	Alzheimer's (18)	Non Alzheimer's (53)	X <sup>2</sup>
<b>Religion</b>			
Hindus	13	39	.458
Christians	3	7	df 3
Muslims	2	6	.928
Others	0	1	
<b>Marital status</b>			
Married	14	40	.702
Single	1	5	df 3
Other	3	8	.873
<b>Family type</b>			
Nuclear	6	21	.252
Extended	10	26	df-3
Living alone	1	3	.969
Missing	1	3	
<b>Education</b>			
No formal education	3	9	
Primary	7	29	
Secondary	3	9	.279
PUC	3	3	df-18
Graduate	1	1	
Postgraduate	-	1	
Missing	1	1	
<b>Residence</b>			
Rural	10	29	
Urban	3	6	1.000
Semi urban	4	13	df-3
Missing	1	5	.000*
<b>Socioeconomic status</b>			
Upper	4	11	1.000
Middle	7	32	df-3
Lower	4	4	.000*
Missing	3	6	

\*<0.001

average 9 years of schooling and about nine (16.9 %) had no formal education, graduates and postgraduates in the both the groups were negligible.

In majority of the families the patient himself (usually in males) was the head of the family-20( %); 8(%) spouses( wife or husband depending on who was the index patient); sons in 7( %);fathers in 5( %); siblings and others in the rest.

**Table 4 : Distribution of Illness related variables across the groups**

Variable	Alzheimer's	Non Alzheimer's	X <sup>2</sup>
<b>Onset</b>			
Early	4	-	3.07
Late	13	2	df-1
NA	1	-	.080*
			Fisher's Exact Test
<b>Presence of Physical Illness</b>			
Present	7	14	.726
Absent	8	38	df-1
NA	1	1	.394
<b>Stressor</b>			
Present	3	24	10.86
Absent	13	15	df-2
Not available	2	14	.004*
<b>Family H/O</b>			
<b>Psychiatric Illness</b>			
Present	8	23	2.45
Absent	8	26	df-2
Not available	2	4	.293
<b>Past Psychiatric Illness</b>			
Present	1	5	7.93
Absent	17	32	df-2
NA	-	16	.019*

\*<.001

Table 4 shows the distribution of Illness related variables of the sample. Thirteen of the 18 in the Alzheimer's group i.e. 72.2 % had a late onset and 4(22.2%) had a presenile onset. The Fisher's Exact Test was statistically significant (p<.001 level).

In the non Alzheimer's group there was seven (13.3%) with vascular dementia; Multiinfract-3(5.7 %);dementia in other diseases-14(26.4 %);dementia in Picks-2(3.7 %); in Parkinson's-6(11.3 %); Unspecified-21(39.6 %).In this group there were additional specifiers 2 were with predominantly delusional symptoms; two with depressive symptoms and three with mixed symptoms.

There was a significant proportion in the non Alzheimer's group with the presence of a stressor in comparison to the Alzheimer's group and this was statistically significant at P-<.001 level. There were six (33.3%) with a positive family h/o of psychiatric illness in the Alzheimer's group as against 23 (43.4 %) in the non-Alzheimer's group. In the non Alzheimer's group 7(13.2%) with a past history of psychiatric illness as against one (5.5%) in the Alzheimer's group.

**Table 5 : Distribution of the Physical Illness across the groups**

Diagnosis	Alzheimer's18	Non Alzheimer's53
DM	1	6
HTN	1	-
DM+HTN	3	9
HTN+CVA	-	2
Anemia	-	2
Huntington's disease	-	1
Parkinson's disease	-	1
IHD+HTN	-	1
HTN+MI	-	1
Brain injury	-	1
Hemi paresis + CVA	1	1
HTN+DM+IHD	1	1
Convulsions	-	2
Absent	11	36

**Many had more than one disorder**

DM-Diabetes Mellitus; HTN-Hypertension; CVA-Cerebrovascular Accident;

IHD-Ischemic Heart Disease; MI-Myocardial Infraction

There was physical comorbidity in both the groups however was not statistically significant. **Table 5** depicts the details of the diagnostic break-up in the two groups. There was 38.9% in the Alzheimer’s group with physical comorbidity whereas in the other group there was about 32.1% with various physical illnesses. There were many with more than one illness and were mostly in the cardiovascular system in the non Alzheimer’s group.

**Table 6: Distribution of the Psychiatric Diagnostic Breakup across the groups**

Diagnosis	Alzheimer’s 18	Non Alzheimer’s 53	X <sup>2</sup>
Alcohol Dependence Syndrome	0	4	1.000
Alcohol Harmful use	1	0	df-5
Nicotine Dependence Syndrome	0	2	.000*
Moderate Depressive Disorder	0	4	
Anxiety Disorder	0	1	
Delirium superimposed on dementia	0	3	
Organic disorders	0	3	

\*<.001

Table 6 shows the psychiatric morbidity in the two groups. As is evident from the distribution there was a predominance of psychiatric disorders in the non Alzheimer’s category which was statistical significant p<.001. Substance use disorders both alcohol and nicotine dependence was present in six (11.3%) of the cases. Depressive disorder (Moderate Depression & Recurrent Depressive Disorder) in 4(7.5%); Delirium and organic disorders in 3 each i.e., 5.7%. Among those with a Depressive disorder three were males.

**Table 7 : Distribution of Nature of illness in family across three generations**

Type of disorder	First Degree		Second Degree		Third Degree	
	ALZ	NALZ	ALZ	NALZ	ALZ	NALZ
Schizophrenia/ psychosis	1	2	-	1	-	-
Completed suicide	1	3	-	-	-	3
Alcohol Dependence syndrome	-	6	-	-	-	2
Mental subnormality	-	1	-	-	-	-
Dysthymia / depressive disorder	-	4	-	-	-	-
Delirium	-	1	-	-	-	-
Dementia	-	2	-	-	3	-
Not known	1	1	-	-	-	-
Total	3	20	-	1	3	5

\*Alzheimer \*\* non Alzheimer

Among the first degree relatives in the nonAlzheimer’s group there was schizophrenia in two (3.7%); completed suicides in three (5.6); Alcohol dependence syndrome in six (11.3%); depressive disorder in four (7.5 %); two (3.7%) had dementia. Some of them had more the one illness. In the first degree relatives of the Alzheimer’s family history was less common. In both the groups among second degree relatives it was almost virtually absent. It is also interesting to note that in the Alzheimer’s group there was three (16. 7%) with a history suggestive of dementia in the third degree relatives.

**Discussion**

This study aimed to evaluate the psychosocial and clinical characteristics of patients diagnosed as Dementia in a tertiary care facility of a teaching hospital. The current study pointed that a significant proportion i.e. about 71.8% were males, 74.6% were diagnosed with other than Alzheimer’s dementia. Those with Alzheimer’s disorder were above 70 years and majority with non Alzheimer’s disorders were in their late sixties. In majority of cases it was reported that either the



'patient himself' or their fathers usually among the males continued to be the heads of the family despite their illness status and disability as we are strongly inclined to the male-dominated societies as most of the families in India is based on patrilineal descent (Sachdeva, 2000). Further, it was observed that most of them were from middle class and with rural backgrounds.

In this study in the non Alzheimer's group there were physical as well as psychiatric co morbidities, diabetes and hypertension being more common and depressive disorders or substance use disorders among the psychiatric disorders. Certain medical comorbidities may increase the risk of dementia, although genetics are also important in its etiology. The assessment and treatment of psychiatric symptoms in persons with cognitive dysfunction are becoming increasingly important. Up to 90% of patients with dementia have psychiatric comorbidities (Lyketsos & Olin 2002; Plassman *et al.*, 2007).

Depression affects 20% to 32% of persons with dementia: the prevalence is higher in patients with vascular dementia than in patients with Alzheimer disease (AD) (Lyketsos *et al.*, 2000). Assessing depression in dementia patients poses several challenges. Depressive symptoms can be the initial manifestations of dementia and may fluctuate over time (Lyketsos & Olin 2002; Rabins *et al.*, 2007).

Psychiatric comorbidities in dementia also include delirium, which is treated primarily by addressing underlying medical disorders. Vascular factors, such as hypertension and type 2 diabetes, are likely to increase the burden of dementia. Most patients with dementia, because of their age, suffer from concurrent medical conditions in various body systems (Finkel *et al.*, 1996; Steinberg, 2004). Dementia, therefore, can have a substantial impact on morbidity and quality of life (Lyketsos *et al.*, 1999). Although physical and psychiatric comorbidities are known to exist in younger patients (Kisely & Goldberg, 1996), the association between these two variables in older patients with dementia is not well understood or documented. Greater clarity regarding this association would have bearing on both diagnosis and intervention.

Furthermore, the recognition of comorbid neuropsychiatric and medical conditions in patients with dementia will likely assist the physician in diagnosis and treatment, which, in turn, can improve the quality of life

for patients and their caregivers. For example, an elderly patient with dementia and a urinary tract infection may lack the ability to meaningfully express his or her physical discomfort and instead become agitated or irritable. Thus, recognizing the association between agitation and potential urinary infection would alert treating doctor of the possible urinary tract infection, thereby facilitating medical treatment and reducing patient discomfort

It is also known that 15 to 25 percent of dementia cases are tied to alcohol abuse. (Smith & Atkinson, 1995) Alcohol related dementia tends to show up at a younger average age than Alzheimer disease (about 10 years younger) (Carlen *et al.*, 1994; Thomas & Rockwood, 2001). In this study a small number had Alcohol use amounting to dependence in the non Alzheimer's group. Clinicians need to be alert to the possibility that alcohol may be an etiological factor in their elderly patients presenting with dementia.

Whereas the effect of treatment for memory disturbances is modest, current treatment for comorbid psychiatric symptomatology such as depressive and psychotic disorders is moderately effective and can lead to improved functioning and decreased agitation (Kunik *et al.*, 1998, 1999) and perhaps reduced medical expenditures.

Worldwide, family caregivers are the cornerstone of support for people with dementia. They experience significant psychological, practical and economic strain. (Dias *et al.*, 2004). Dementia care is particularly time-intensive because of the need for close supervision. Many caregivers need to give up or take up part time work to care

Dementia has a very low profile in most developing countries. Families often view it as a normal part of aging, and few seek help despite experiencing significant strain (Patel & Prince, 2001). Thus visibly it is accorded a low priority by policymakers in the developing countries and there is little sign of attention being given to the development of more responsive health care or social welfare services. Population-based research, well disseminated, can play a crucial role in increasing awareness at all levels of society.

Due to the great shortage of health care resources and the low levels of awareness about dementia, limited professionals available,

interventions addressing the needs of the people should be home based and directed at improving quality of life of the person with dementia and their caregivers. In view of the lack of specialists to deal with dementia, a group in Goa developed an alternate model of care which involved training lay health workers to provide home-based care for people with dementia under the supervision of a psychiatrist. This was successfully implemented and evaluated in a randomized controlled trial which showed clear benefits (Dias & Patel 2009)

Illiteracy remains yet another risk factor for dementia. Recognition of memory problems by family members, often fail to seek medical attention. Education of the lay public on the early signs and symptoms of dementia must be a key first step in improving recognition of dementia in the community. Achieving progress with dementia care depends on creating the climate for change. Lack of awareness, which is widespread among policy-makers, clinicians and the general public, is a key public health problem with important consequences. National Alzheimer's associations (e.g. the Alzheimer's Society India) help to raise awareness and create a framework for positive engagement between clinicians, researchers, caregivers and people with dementia

Despite a few limitations being a retrospective review, this study adds to the growing literature of the epidemiology of dementia in developing countries and would be helpful for healthcare planners for adequate resource allocation for preventive and curative services. The findings suggest that policymakers in low-income and middle-income countries may need to re-examine the burden and impact that dementia places on their health services.

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## Worldwide Prevalence of Depression in Elderly

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### ABSTRACT

*The community-based mental health studies have revealed that the prevalence of depressive disorders in the elderly population of the world varies between 10% and 20% depending on cultural situations. To determine the Median Prevalence Rates of Depressive Disorders in elderly population of India and various other countries in the world, a retrospective study based on Meta-analysis of various study reports was planned. Community based mental health surveys on geriatric depressive disorders were conducted in continents of Asia, Europe, Australia, North America, and South America. All the studies that constituted the sample were conducted between 1955 and 2005. After applying the inclusion and exclusion criteria on published and indexed articles, 74 original research studies that surveyed a total of 4,87,275 elderly individuals in the age group of 60 years and above, residing in various parts of the world were included for the final analysis. Median prevalence rate and its corresponding inter-quartile range, Chi-square test and Chi-square for Linear Trend were applied. P value <0.05 was considered as statistically significant. The Median Prevalence Rate of depressive disorders in the world for the elderly population was determined to be 10.3% [Interquartile Range (IQR) = (4.7% - 16.0%)]. The Median Prevalence Rate of depression among elderly Indian population was determined to be 21.9% [IQR = (11.6% - 31.1%)].*

**Key Words:** Depression, Prevalence, Elderly.

The World Health Organization estimated that the overall prevalence rate of depressive disorders among elderly generally varies between 10% and 20% depending on cultural situations (Rangaswamy,

2001 and Wig, 2001). The community-based mental health studies in India have revealed that the point prevalence of depressive disorders in elderly Indian population varies between 13 and 25 per cent Nandi *et al.*, 1976 and Ramchandran *et al.*, 1982).

### Materials & Methods

**Study Design :** Retrospective study based on Meta-analysis on prevalence of depressive disorders in elderly population.

**Setting :** Community based mental health surveys on depressive disorders in elderly, conducted in the continents of Asia, Europe, Australia, North America, and South America, were included in this analysis.

**Study Period :** All the studies that were conducted and published in indexed journals between 1955 and 2005 (i.e., within the last fifty one years) would constitute the sample. This is decided on the observed fact that it normally took around two to three years time for a project report to get accepted and published in an indexed journal. So, a study conducted during 2005 was expected to get published in an indexed journal by the year 2008. The sample size for this project was finalized during the year 2008.

**Sample Size :** All published articles on prevalence of depressive disorders in elderly population that were available, adequately analyzed and accessible from the internet, the Central Library of Kasturba Medical College Manipal in Karnataka and the Central Library of Sikkim-Manipal Institute of Medical Sciences (SMIMS) in Sikkim, constituted the study universe.

**Databases :** The search engines that were utilized for electronic data from the internet were MEDLINE, PUBMED, GOOGLE, YAHOO, EMBASE, PsycINFO and the Cochrane Collaboration Database for original human research articles in the English literature published through 1<sup>st</sup> January 1955 and 31<sup>st</sup> December 2005 using the two sets of search items: "Prevalence of Depression in Elderly" and "Prevalence of Geriatric Depression".

**Sampling Procedures:** Only studies that either covered the total population of study area or applied Simple Random Sampling Method to identify the study subjects in their corresponding research projects were included for this final meta-analysis.

**Inclusion Criteria :** To avoid undesired bias due to design effects from various epidemiological study designs, the researchers had included only community based cross-sectional surveys on prevalence of depressive disorders and some prospective study designs that had not excluded depression on baseline. All these studies were conducted on homogenous community of elderly population in the world, who were either selected by simple random sampling technique or covered under whole population of the study area. For determining the various correlates of depression in elderly, only those articles were included that had at studied at least one risk factor of depression.

**Exclusion Criteria :** All the unpublished reports and unavailable or unanalyzed or inaccessible articles from the internet as well as the Central Library of Kasturba Medical College Manipal in Karnataka and Central Library of Sikkim-Manipal Institute of Medical Sciences (SMIMS), Sikkim on studies regarding the prevalence of depressive disorders in elderly population were excluded from this study. But it was perceived by the researchers that the proportion of excluded reports on account of inaccessibility or unavailability would constitute less than 5% of the available articles on relevant topic. Hence, this was expected to have minimal impact on the final results. Studies, where the 95% Confidence Interval of prevalence rate estimation exceeded more than 20 units, were excluded on account of possible improper sample size estimation. Studies conducted on migrant populations, old age homes and health care institutions were also excluded from this meta-analysis in order to avoid biasness. High prevalence rate of depression was very common among isolated groups of individuals in the community, who had migrated to some other place either due to political force or to meet their physiological or financial needs.

**Selection of Articles :** In the first step, while searching through all the selected databases, the key words "depression," "prevalence", "elderly", "geriatric" and "aged" and the text word "community" were used. In the second step, after applying the inclusion and exclusion criteria, all relevant articles (judged on the basis of the title and abstract) were retrieved for more detailed evaluation. In the third step, the bibliographies of relevant articles were searched for additional references. Finally, all retrieved articles were screened to determine which met the following six inclusion criteria: 1) original research

published in English, 2) study group of community residents, 3) subjects age 60 years or older, 4) cross-sectional study design that included both old and new cases of depressed elderly individuals in the community, 5) prospective or follow-up studies that have not excluded the depressed elderly individuals at the baseline and 6) acceptable definition of depression (either recognized diagnostic criteria or cut-off on a depression rating scale).

### List of Studies Included in Meta-analysis:

Essen-Moller (Sweden, 1956), Kay (Australia, 1964), Parsons (UK, 1965), Nandi D.N. *et al.* (India, 1972-73), Copeland J.R.H. *et al.* (UK, 1976), Ramachandran V. *et al.* (India, 1979), Blazer D. *et al.* (North Carolina, 1979), Balzer (US, 1980), Eaton (US, 1981), Stanley A.M. (US, 1981), Rao Venkoba A. *et al.* (India, 1982), Penninx Brenda W.J.H. *et al.* (New Haven, 1982-88), Broadhead W.E. *et al.* (US, 1982-84), Murrel (US, 1983), Gurland (US, 1983), Kennedy G.J. *et al.* (US, 1984-85), Kay (Australia, 1985), O'Hara (US, 1985), Kay (Hobart, 1985), Kay D.W.K. *et al.* (Hobart, 1985), Berkman (US, 1986), Copeland (UK, 1987), Copeland *et al.* (UK, 1987), Morgan (UK, 1987), Bland (Canada, 1988), Kivela (Finland, 1988), Weissman (US, 1988), Kivela *et al.* (Finland, 1988), Kennedy (US, 1989), Lindsay (UK, 1989), Cwikel (Israel, 1989), Bosma (Netherlands, 1990), Schoevers R.A. *et al.* (Amsterdam, 1990-97), Geerlings M.I. *et al.* (Amsterdam, 1990-96), Blazer (US, 1991), Fuhrer (France, 1992), Kua (Singapore, 1992), Madianos (Greece, 1992), Johnson J. *et al.* (US, 1992), Henderson (Australia, 1993), Ihara (Japan, 1993), Saunders (UK, 1993), Liu C.Y. *et al.* (China, 1993), Woo (Hong Kong, 1994), Komahashi (Japan, 1994), Pahkala K. *et al.* (Finland, 1994), Beekman (Netherlands, 1995), Hooijer (Netherlands, 1995), Lobo *et al.* (Southern Euro, 1995), Roberts R.E. *et al.* (US, 1995), Ramin M. *et al.* (US, 1996), Komer A. *et al.* (Denmark, 1996), Geraldine F.M. (US, 1996), Lauritzen (Denmark, 1996), Chong M.Y. *et al.* (Taiwan, 1996-98), Nandi P.S. *et al.* (India, 1997), Prince M.J. *et al.* (UK, 1997-98), Mc Cracken C.F.M. (UK, 1997), Kirby M. *et al.* (Dublin, 1997), Braune B.T. *et al.* (Germany, 1997-98), Newman S.C. *et al.* (Canada, 1998), Newman S.C. *et al.* (Canada, 1998), Tiwari S.C. (India, 1999), Chen R. *et al.* (China, 1999), beekman A.T. *et al.* (Netherlands, 1999), Deise A.A.P.O. (Brasil, 2001), Stella A. (Greece, 2001), Heun R. *et al.* (Germany, 2001), Mine E. *et al.*

(Turkey, 2001-02), Barua A. (India, 2002), Daniel W.L.L. *et al.* (Canada, 2004), Copeland J.R.M. *et al.* (Berlin, 2004), Ostbye T. *et al.* (Canada, 2005) and Chen R. *et al.* (China, 2005).

**Study Instruments:** Clinical Diagnoses by Psychiatrists were based on DSM-III-R, DSM IV and ICD-10 criteria. Other standardized study instruments used were Elderly Mental State Examination (GMS), AGE-CAT, Composite International Diagnostic Inventory (CIDI-SF), CES-D, BDI, HDS, Yesavage Elderly Depression Scale, Centre for Epidemiologic Studies Depression Scale, Mini Mental Status Examination (MMSE), Hamilton Depression Scale (HDS / HAMD), Clinical Rating Scale for Depression, Mini Mental Status Examination and Elderly Depression Screening Scale and Mastering Depression In Primary Care Version 1998.

**Assessment of Validity:** The validity of each of these study instruments was verified with its individual validity and reliability reports and reconfirmed with the renowned psychiatrists. Some of the studies used the clinical assessment by the individual psychiatrists and the diagnostic criteria were never mentioned. In these cases, the impact factor of the journal where the research article got published was taken into consideration for assessing the quality and standard of research.

### Data Collection Procedure:

The investigators were trained by the renowned psychiatrists of Kasturba Medical College Manipal, Karnataka and Sikkim-Manipal Institute of Medical Sciences (SMIMS) on how to interpret the results from different community based psychiatric evaluation studies. The diagnoses generated by the questionnaires used as study instruments was strictly kept confidential and reconfirmed by consulting the senior psychiatrists for confirmation of their acceptability, content validity and reliability, before arriving at a final diagnosis for data analysis.

At the beginning, a Pilot study was conducted with randomly chosen data from 25 original research articles that surveyed elderly individuals in the age group of 60 years and above, residing in various parts of the world. After applying the inclusion and exclusion criteria, some of these studies used in the Pilot Study, were included for statistical analysis in the final research project.

Anytime a relevant article was found inaccessible on internet or in designated libraries, all attempts was made to contact the corresponding author(s) through postal letters, telephone, fax or email and sincerely requested to provide the investigators with a soft or hard copy of that article. In case after repeated five attempts, spread over one year, if the investigators failed to procure a relevant article, then it was considered as unavailable and excluded from the final analysis.

**Data Analysis:** The collected data was tabulated and analysed by using the statistical package SPSS (Statistical Package for Social Sciences) version 10.0 for Windows and EPI INFO version windows 2000. Findings were described in terms of Median Prevalence Rates of depressive disorders in elderly and their corresponding Inter-Quartile Range (IQR). Proportions and their 95% Confidence Intervals (CI) were used for the same purpose. Chi-square test was applied for studying prevalence rates of elderly depressive disorders among various countries in the world and in India. Here,  $p$ -value  $< 0.05$  was considered as statistically significant.

### Results and Discussions

A retrospective study based on Meta-analysis on prevalence of depressive disorders in elderly population was conducted by the investigators. All the studies, which were included for final analysis, were conducted during the year 1955 to 2005 in the continents of Asia, Europe, Australia, North and South America.

#### Selection of Articles

The search strategy yielded 896 potentially relevant studies; among these 143 were retrieved for more detailed evaluation. Though 77 studies met the inclusion criteria, but we could retrieve main article or structured abstract for only 74 studies which were included for the final analysis. So, only 3(4%) potentially relevant studies could not be included due to their lack of inaccessibility and unavailability of relevant information elsewhere. Among these 74 selected articles, which formed the study universe for this meta-analysis of depression in elderly, 69(93.2%) had cross-sectional study design and 5(6.8%) had prospective study design that had not excluded depression on baseline.

Two meta-analysis reports, one by Chen R. *et al.* (1999) on 10 relevant studies (from China) and another by Copeland J.R.M. *et al.* (2004) on 14 relevant studies (from Amsterdam) and also a systematic review report by Beekman A.T. *et al.* (1999) on 34 relevant studies (from Netherlands) were included in this meta-analysis project. So, this study had actually taken into consideration the prevalence rates of depression in elderly from [74+(10+14+34) = 132] survey reports from various parts of the world.

#### Determination of Median Prevalence Rate of Depressive Disorders in Elderly

The 74 included studies involved 4,87,275 elderly individuals from all parts of the world at baseline. Among these 6 studies from India involved only 2,499 (0.5%) elderly individuals at baseline for assessment of presence of depression. The mean ages of the study population were reported in 68(85.1%) articles with mean ranging from (62–71) years. Here, 68(91.9%) articles included gender distribution and (36%–64%) of participants were men (median=46%). The length of reported study period ranged from (3–84) months (median=9).

Only 52(70.3%) studies used some of modern rating scales for diagnosis of depression in elderly. Among these, 14 used AGE CAT / GMS-AGE CAT, 4 used DIS / HDS, 8 used GMS / GDS, 11 used CES-D and 15 used DSM / ICD criteria for the diagnosis of geriatric depression. The prevalence rate of geriatric depression was found to be higher in studies using psychiatric examination and operational definitions and studies used the Geriatric Depression Scale (GDS) or Geriatric Mental State Schedule (GMS) alone.

The Median Prevalence Rate of depressive disorders in the world for the elderly population from 74 studies was determined to be 10.3% with Inter-Quartile Range varying between 4.7% and 16.0%. Similar findings were reported by Kirby M. *et al.* (1997, from Dublin) and Kay D.W.K. *et al.* (1985, from Hobart). Studies conducted by Geerlings M.I. *et al.* (from 1990-96, Amsterdam), Newman S.C. *et al.* (1998, from Canara), Liu C.Y. *et al.* (1993, from China), also reported the prevalence rate of depression among the elderly to be 10.5%, 11.2% and 12.9% respectively.

The comparison of median prevalence rates of depression in elderly population of India and the rest of the world was also studied. It was found that the proportion of depressed elderly population in India (18.2%) was significantly higher than the rest of the world (5.4%) and this difference was found to be statistically highly significant ( $\chi^2 = 770.4$  and  $p = 0.000000001^*$ ). Though there is an alarming increase of proportion of depressed elderly in India, but we should also keep in mind that there were only 6 relevant studies available from India, covering only 0.5% of elderly participants of the world as compared to 68 studies from the rest of the world covering 99.5% of the participants.

The low prevalence of depression in elderly during recent years could be due the presence of better diagnostic instruments with optimum validity and reliability had been developed during the recent years to diagnose elderly depression in the community and ruled out cases of dementia which were often falsely diagnosed as depression in the past. The technological advancements in recent years on health care delivery systems, including mental health, also provided adequate health support systems, improving the quality of life for the elderly. However, a high prevalence in the past could be attributed to the fact that the study instruments that were applied during the year (1955-1984) were not specially devised to specifically detect depression in the community and they could have falsely identified more cases of dementia as depressive disorders and majority of these studies relied on clinical diagnosis and operation definition where the cut-off level for identification of geriatric depression was lower.

Since there is population explosion recorded in many of the developing countries in the world including India in recent years, we need also to keep in mind the number of depressed elderly individuals who would be required to provide adequate mental health care. Though a lower prevalence rate of geriatric depression was recorded in recent years, there was an alarming increase in the number of elderly individuals suffering from depression which had a booming eight-fold increase from the period of (1955-1984) to (1995-2005) and this trend was also found to be statistically highly significant. Though there was a significant decrease trend in world prevalence of geriatric depression, but it was significantly higher among the Indians in recent years than the rest of the world.

The comparison of depressive disorders in elderly population of various continents of the world was also undertaken. Due to unavoidable circumstances, no study from the African continent was available for this meta-analysis. However, the findings suggested that the median prevalence rates of depression in elderly were similar in Asia, Europe and America, but it was significantly lower in Australia. Here, we should keep in mind that only 3 studies were available from Australia which covered only 0.4% elderly population of the world. Though the proportion of elderly individuals affected with depression was significantly lower in Asia (4.2%) than Europe (10.9%) and America (8.4%), but the number of depressed elderly individuals was significantly higher in Asia which was evident from 14 studies conducted in various Asian countries covering 74.5% population of the world. Care and bonding from family support systems, lesser competitive life styles and improved mental health facilities with their integration with primary health care could account for lesser prevalence rates in some of the developed Asian countries.<sup>1,2,4</sup> However, studies from India had reported a very high prevalence rate of 21.9% with IQR ranging from (11.6-31.1).

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## **The Meaning Of Institutionalisation To Older Africans: A Case Study Of A Zimbabwean Old People's Home**

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### **ABSTRACT**

*Institutionalisation is foreign to older persons in Africa. It invokes negative feelings on those institutionalised. These negative feelings include those of guilt, neglect/abandonment by relatives, regret and powerlessness. While institutionalisation can not be avoided especially for destitute individuals it has de-personification effects, some of which can be avoided if staff at the institution can be more accommodative and some rules are changed/repealed to allow the older persons to live respectable existences. The intentional and sometimes calculated exercise of power by staff in determining all the activities of the older persons feeds on to older people's feelings of powerlessness. However, since the older persons cannot live without the institution they have to gratefully accept their situation dealing with each day as it comes, waiting for death.*

**Key words :** Institutionalisation; Death; Bitterness; Restriction; Immorality; Food; Companionship; Home.

Traditionally Zimbabweans did not regard institutionalisation as a popular option. By 1995 Mupedziswa noted that institutional care was viewed as the same as abandonment. There was a general feeling that the older persons should not be forsaken into institutions but rather they should be looked after by their relatives, particularly children, until they died (Mupedziswa, 1995). Thus those who were institutionalised felt that they had been abandoned and had no relatives. By then a very small percentage of Zimbabweans benefited from institutionalisation



and other forms of welfare provisions because institutionalisation was felt to be fit for foreigners who had no relatives in the country. To date these feelings of abandonment have not changed among the older persons studied at *Tinerudo* (pseudonym) old people's home.

*Tinerudo* is a hospital home owned by an international church but affiliated to an international non-governmental organisation. The institution has two sections, the hospital (C- scheme) and the home (B-scheme). Old people's homes can generally be divided into three categories or schemes, which are A, B and C. The A scheme caters for healthy destitute old people. B scheme houses old people who need medical attention but are mostly independent and do not need assistance in bathing, clothing and eating. The C scheme houses frail old persons who need help in everything they do. They need assistance in bathing, clothing, eating and in using the toilet. Older persons at *Tinerudo* can be classified as falling into the B and C categories.

At the time of study there were 81 older persons, 20 females and 61 males. Most older persons were Zimbabwean while others were foreigners from Mozambique, Zambia, South Africa and Malawi. Almost everyone seemed to be under medication for various ailments that were said to be consequences of ageing. These included asthma, high blood pressure, arthritis, backache, Parkinson's disease etc. Therefore none among older persons was allowed to drink alcohol either on or off the premises. The same could be said for sexual liaisons that were said to jeopardise the health of older persons.

### Objectives of the study

1. To find out the meaning of ageing and the role of older persons in the Zimbabwean/African setting in general
2. To analyse the reasons given for institutionalisation by older persons
3. To find out how the role of older persons in society is enabled or constrained within an institutional framework. What does institutionalisation deprive the older persons of?
4. To document the benefits of institutionalisation to older Africans.

## Method

### Sample

The research was carried out at *Tinerudo* hospital home (as a part of the ethical considerations the name of the organisation has been hidden thus *Tinerudo* is a pseudonym). The target population were all the older persons, the home administrator, the matron, nurses, cleaners, drivers, general hands, nurse aides and cooks.

A sample of 20 respondents was selected using purposive sampling and snowballing. Of the twenty respondents, four were staff members who included the administrator, the matron, a cook and a general hand. The general hand and cook were chosen on the basis that they were the longest serving employees at the home. There were six female and ten male older persons involved in the study. The average age of older persons was 79. The older person with the longest stay at the home had spent 14 years there while the one with the least stay had been at the home for five months. The average time of stay at the institution is 5 years. Of the eight foreign older persons only one was female. Foreigners came from Malawi, South Africa and Zambia and Mozambique.

The research is a qualitative case study of the older persons. Ferreira (1999) argued that qualitative studies enabled researchers to learn about the lived experiences of older Africans. Qualitative methods gave room for the researcher and the researched to discuss their ideas freely and on the same level. Several methods were employed in collecting data included the life history approach, participant observation (which lasted for 2-½ months), in-depth interviews, semi-structured interviews and secondary analysis. Data analysis was mainly thematic.

### Findings

#### The traditional role of older persons in the Zimbabwean/ African setting

Traditionally an old person was regarded as a fountain of wisdom and having a closer spiritual connection with the ancestors (Hampson, 1990). Writers on traditional African societies have stressed the importance of age as a significant criterion for the attainment of authority, power, privilege, prestige and leadership positions in the community. In

traditional Africa the older an individual became the higher were his chances for gaining upward mobility in the social hierarchies (Rwezaura 1989). Even among women, the older one was the more powerful they became in their knowledge and involvement in practises such as female genital mutilation and preparation of young girls for marriage and control of young women in marriage.

Through a system of economic reciprocity, a person was able to use his wealth to attract additional dependants and thus to secure a greater degree of social security during old age. The ability of the older persons to control and mediate in traditional arrangements such as marriage of younger generations also meant that they remained powerful and wealthy even in old age. However, the security that the traditional arrangements used to provide is no longer there as activities such as marriage for example, no longer require the active participation of the older persons and to a larger extent they are no longer in control. The older persons are also no longer in control of valuable resources such as land, livestock and spiritual matters. Development policies in most countries have largely marginalised the older persons (Randel *et al.*, 1999).

#### **What do respondents think leads to institutionalisation?**

The major reason given for being in an institution was destitution where an individual lacks all other support systems and thus cannot survive alone without the assistance of external bodies such as the government or the church. Only those who cannot work/ fend for themselves must be institutionalised. Poverty is the common denominator for all the older persons who now occupy the same class position even if they used to be highly regarded during their prime years. There was also the belief that institutionalisation was only for those without children/ or those abandoned by relatives. Lack of education and unattractive employment such as farm working were deemed to be bad beginning points in life that predisposed one towards institutionalisation. One respondent argued “*kushaya chikoro ndizvo zvakanyanya kutipusisa- lack of education is what made us really foolish*”.

Though almost all respondents have health concerns none of them voluntarily opted to be institutionalised for medical reasons. They were all ‘forced’ by circumstances into accepting their poverty and thus institutionalisation offered relief from thinking about daily survival.

#### **What does it mean to be old in an old people’s home? : The resultant meaning of institutionalisation**

Institutionalisation was met with feelings of bitterness, anger, betrayal, shame powerlessness and uselessness. Most respondents with relatives and children felt bitter because their relatives could not look after them and had agreed to their institutionalisation. Bitterness towards children was felt because generally in life one has children so that they will look after him/her when he/she is aged. When children failed to do so either intentionally or unintentionally they were resented. The very act of suggesting institutionalisation severs the relationship between parent and child. The parent looks at this act as ingratitude and also as suggesting that the parent is a witch or wizard. One older person argued that

*“vana vemazuva ano kuzvara kana kusazvara zvakangofanana. Kusadiwa kunge muroyi. Children of nowadays are just the same. Whether you have children or not is just the same. They hate you as if you are a wizard.”*

This respondent believed that there was a general disrespect towards old people among the younger generations such that one could no longer trust the children to look after him when he is aged. Therefore having them or not having them was the same since even those with children were later abandoned and dumped at an institution. Another belief by the respondent was that only those who are witches/wizards or dangerous to the family must be abandoned.

While the majority were bitter with their relatives, one man was bitter towards God. “*Mwari chikara anokohwa paasina kurimachikara akandiseka*”. This means that God is a beast that reaps where he did not sow and laughs at the suffering of an individual.

Institutionalisation was also viewed as the end of the world. A male respondent maintained that “*Pano ndepedu pekufira*. This is

our place to die". "*Pano pawaiting room- we are in a waiting room*". These were common sentiments expressed by most respondents who felt that institutionalisation signalled death. It was evidence that one was about to die. There was therefore nothing to look forward to, except death because life was deemed to be only possible outside the institution and because most of them could not live outside (through subsistence farming etc.) they were closer to death. This death was a slow and painful one since the waiting could take up to ten or fifteen years.

Death always has an oxymoronic quality (Shneidman 1980). It is both feared and embraced at the same time. It was feared among older persons because one was dying in the wrong place, which was the institution. African family notions are against institutionalisation and being given a pauper's burial. A pauper's burial represents a bad death. A person must be buried by their relatives. This kind of death thus became punishment to some extent. It is embraced because it offers relief and is viewed as the ultimate payment for going after worldly pleasures. One respondent argued:

*Ndakamhanya nenyika ndisingazivi kuti nyika inoguma ...Kuguma kwenyika kuno uku -I ran after the pleasures of the world not knowing that the world will come to an end. Now it really has come to an end for me.*

However, one woman embraced death because she thought she would finally be happy and have children that she could not have on earth due to her inability to conceive.

Institutionalisation was also viewed as punishment for being promiscuous/bringing shame to family. This was mainly the attitude held by staff members at the institution. One general hand maintained:

*Majoki vese vese. Munhu anochembera asina mhuri ihure. Ava vechiBrandaya vanemishonga yavanonwa -They are all prostitutes. Anyone who becomes old without a family is a promiscuous. Those from Malawi have medicines that they use to increase their sexual libido.*

There was no sense of sympathy from the staff members who already regarded institutionalisation as a sign of older persons' irresponsibility and immorality because 'responsible people' must be cared for by their kin. Staff members knew that the older persons' experience at the institution was also affected by their negative attitudes, such that one staff member actually commented that he would never allow his parent to be institutionalised. An institutionalised old person was viewed as troublesome, ungrateful and going through a second phase of childhood. The administrator highlighted that:

*Kuchengeta munhu achembera ibasa rinorema. Zvakafanana nekuchengeta mwana. Munhu asingazivi pauri kunokora. Haazivi kuti zviripo here kana kuti hapana- Looking after an older person is a difficult task. It is similar to caring for a baby who does not know where you get things).*

Staff at the institution also believed that an old person must not be sexually active. If one was active then they were branded as dangerous and a prostitute. Rumours and suspicions then circulated that one was HIV positive even without being tested. The matron at the institution argued that those who were sexually active were immoral which justifies why their relatives could not stay with them because such behaviour was shameful.

Life in an institution did not give an old person much choice. The institution was viewed as a jail and sometimes as even worse than a detention camp which at least provided magazines for study. Respondents' lack of free movement in and outside the home made them view their situation as that of bondage. Though they needed institutional help in terms of food, shelter, medication, they also needed to feel that they were still in control of their lives to some extent. The fact that management could decide on who associated with whom and when revealed that the older persons were not in control of their lives. Having a time-table that determined their activities also restricted their existences rendering the institution a total institution (Goffman 1971, Nyanguru 1990).

Another view from the older persons was that since they were now destitute they became "the government's people". This meant that

they felt that they deserved better treatment because the government was responsible for their welfare. Some even went on to argue that as foreigners, they would resist repatriation if it were to take place because they contributed to the country's economy therefore they deserved retirement in an institution that provided them with all their needs. When one old man insisted on having his way, and was told that the institution did not belong to the government, he quickly asked to be transferred to a government institution where he felt he would be treated better.

### **What does institutionalisation deprive them of?**

The main issues that respondents felt were they were deprived of were good food, sex, family and friends. The institution had an open door policy for relatives who were allowed to visit at any time. However, analysis of all the respondents' profiles shows that the few relatives they had rarely visited. If lucky, one could be visited once a year. The majority of relatives never came until after the older person's death. But because of the exorbitant funeral costs the relatives again preferred to be left out of the funeral arrangements and so the dead ended up being given a pauper's burial. Of the 14 deaths that took place during the research only two bodies were collected by relatives for burial. This explains the deep resentment that older persons had for their relatives. Most of them knew that they would be given a pauper's burial and thus denied a decent burial. Culturally such a death is a bad death and is not different from that of an animal.

Respondents complained that the food tasted bad since the relish was boiled without cooking oil. The staff members would cook their own food in different pots and this food had all the ingredients that were not added in the meals of the older persons. As a result some older persons claimed that the high number of cases of diarrhoea among them was a result of badly cooked food. The matron also confirmed that there were cases of pellagra and malnutrition among older persons.

As a participant observer I participated in all the activities of my respondents which even included eating with them. The first time I ate their food I felt like vomiting because of the bad taste of this food. The administrator was apologetic saying that "*nhasi tirikudya nemuriwo*-today we are having sadza and chomolier" as if the menu really changes. The menu was the same everyday except for Christmas day

where a piece of chicken was served together with the vegetables or on Sundays where they were served with chicken giblets. These innards were a special dish because the staff also wanted them and the older persons usually lost out. One day I overheard a nurse asking the whether the older persons would have giblets for the day whereupon a cook promptly suggested that they (the staff) would rather be given these items than the "useless" older persons.

The older persons lost their freedom of association upon institutionalisation. This was especially true for male-female relationships that were not tolerated. Even those who were admitted as a couple ceased to be one upon institutionalisation if they could not produce a marriage certificate because it was believed that their arrangement was just a shameful *mapoto* (shacking up) arrangement. However, the older persons still felt that they could not be deprived of sex. One female respondent argued: "*Haungatirambidze zvataisidya kare -you can't deny us what we used to enjoy*". Another male maintained that "*nature is nature, it cannot be denied. Church rules (though it owns this institution) are theirs and should not apply to us*". Though most, if allowed would not really engage in sex because of ill health, the companionship was necessary and psychologically satisfying.

Institutionalisation also deprived the older persons of decision making capacity even on small issues such as which clothes to wear and when to change them. They only changed clothes twice a week. Some did not even have individual clothes but these were communally shared. This was especially true for the older persons in the hospital section. In such an environment an individual quickly became a case-and was depersonalised. They could be transferred from one home to another without the individual's consent. This transferring was usually done as punishment for misbehaviour. It was therefore an act of asserting authority by the administrators.

### **What do the older persons view as benefits of institutionalisation?**

While there are many issues that the older persons felt they were deprived of, they were grateful for being at an institution that provided them with free medication, food, clothes and shelter. Some regarded the institution as an adequate retirement place because they ceased

worrying about what they ate and when since this was decided by the home. One older person argued: “*Kamwana kanokupa sadza kafarire- you must appreciate a child who gives you food*”. This gratitude was a result of their awareness of their destitution and that their relatives abandoned them. They also got more time to relax, rest (which was especially necessary for those who were ill) and engage in activities such as weaving, gardening etc some of which are income generating. One older respondent felt that the older persons needed to be grateful and not troublesome since some behaviour could even be intolerable to one’s children. He felt that nurses and nurse aides suffered from burn out and stress which explains why they were sometimes rude to patients.

### Analysis

The findings at *Tinerudo* do not lend support to the disengagement theory but actually directly oppose it. The disengagement theory postulates that both the individual and society mutually withdraw from one another as old age approaches. Disengagement is believed to be satisfying, intrinsic, inevitable and a unilateral process. Proponents claim that it allows society to replace its members, while at the same time aiding the older person to prepare for death. The theory stresses the developmental decline, disease etc (Green, 1978). The older persons at *Tinerudo* still want to be part of the society. They want to marry and have happy lives. African norms have always stressed communality, unity and not segregation. Disengagement therefore could just be seen as an ideological justification for treating the older persons with disrespect and disdain.

The older persons at *Tinerudo* seem to have gone against the gift exchange custom which is characteristic of most African societies. Gift giving is a form of social security because gifts involve obligation. Cheater (1986) argued that there were three obligations that came with a gift; the obligation to give, the obligation to receive and the obligation to repay. It could be argued that since the older persons did not give during their prime years but preferred to ‘enjoy their lives’ without regard to their family and relatives; they therefore were not obliged to receive anything from the same relatives and friends. However, some of those who felt bitter expected to receive after having helped in the upbringing

of their children and relatives. Their bitterness stems from the fact that the relatives did not honour their obligations by repaying/ reciprocating the good deeds done by the respondents.

The implications of the study are many relating to policy issues at the institution. Some of the practices at the institution go against African norms, for example, clothes of dead people are only redistributed after some rituals have been performed. However, at the institution when an older person died clothes were just passed on to the living without any rituals. Such defiance of tradition further created suspicion that bad luck and ill health were bound to haunt those who wore such clothes, resulting in their death.

There are moral questions that are raised by this study;

1. If these people have only a few years left to live can they not be allowed to enjoy those few years with their companions or friends? Why would the institution demand a marriage certificate ( in a society that strongly believes in customary unions) in order to allow a husband and wife to stay together?
2. Do outsiders have any right to condemn a local Non Governmental Organisation that is at least trying to provide basic needs to individuals who have been cast away by society and their own relatives or they need to applaud and commend these efforts?
3. Is the government also not dumping these destitute old people on NGOs, especially if the government does not help with money and other resources needed for smooth service provision? Research revealed that the government only offered money for surgical operations done on older persons and a paltry amount ( equivalent to less than \$2 USD) offered per month for each individual. The amount is so insignificant and useless to help ease the burdens of the institution. Bureaucratic red tape in government departments further makes it difficult to get the said paltry funds and those patients needing hip replacement operations, for example, usually died before the money was availed to the institution. Without the support from government it becomes difficult in a hyperinflationary environment for a church organisation to function alone.

## Conclusion

The view that *Tinerudo* was a 'waiting room' was a result of the older persons' evaluation of their obvious deterioration in health, advanced age and seeing ill people every day. Awareness of death resulted from seeing the mortuary which is part of the structural arrangements and occasionally being told that someone has died at *Tinerudo*. Too much time on one's hands with nothing to do makes one go through a lot of soul searching and thinking, much of which are regrets. During the time of research there were no entertainment facilities that could help refresh the mind except for one television set in the sitting room. There were no books, magazines etc thus most older persons spent their time sitting or sleeping under trees, a few chatting, others weaving or gardening while the majority were always quiet, lonely and pathetic. Except for some occasional visits from a catholic priest (who brought cigarettes and sweets) and some charitable organisation intending to donate goods to the institution, the older persons hardly had visitors. Their contact with the outside world was either through the staff whom they engaged to sell their wares or when a selected group of 'decent' older persons visited the Zimbabwe Broadcasting Corporation (ZBC) or were taken out for lunch by donors. Spending all the time confined to the institution with nothing to look forward to shows the restrictive nature of the institution.

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## Problems of Elderly Widows in Odisha : An Empirical Study

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### ABSTRACT

*The present aimed to study find out the socio-economic background of widows and to ascertain the changes in cultural practices due to widowhood, to assess health problems, socio-economic problems and psychological problems of the widows and to assess their attitude towards life and their suggestions for the welfare of the widows. A structured interview schedule consisting of simple and short questions was used to collect data from 160 elderly widows. The data was collected during October 2009 to November 2009 (Month of Kartik) through personal interview. Out of 160 elderly widows, 85 (53.1 per cent) were illiterate, 63.8 per cent (N=102) were from joint family set up. It was found that most of the respondents (93.1 per cent) were completely vegetarian and wearing simple white sarees after the death of their husbands. Majority of them have expressed that they are not allowed to attend the naming ceremony of a new born baby, and to enter into the marriage pendals. Most of the elderly widows have multiple health problems, reduced vision (81.2 per cent), hypertension and diabetes (65 per cent each). Majority of the respondents (70 per cent) are not being involved in their family affairs. 75.6 per cent of the respondents feel completely insecure due to widowhood. Almost all the respondents feel that pension should be given to poor widows, they should be made aware of the facilities provided by the Government to the widows. Society and people in general should treat them well.*

**Key words:** Elderly, Widowhood, Cultural practices, Health problems, Geriatric welfare services.

Ageing is a biological process and experienced by the mankind in all times. It is also a multi-dimensional process. A person's activities, attitude towards life, relationship to the family and the work, biological capacities and physical fitness are all conditioned by the position in the age structure of the particular society, in which the person lives. Rapid ageing trends present new challenges to government, families and the elderly themselves (Ramchandran and Radhika, 2006). In comparison to men, women are denied access to opportunities for personal growth and self-development in education, employment, professional and political life. Furthermore, the patriarchal system and pre-occupation with sexual and reproductive functions during adult age, perpetuates the subservient role of women in the family and in the society. Women also spend majority of their working hours in domestic labour, which is usually unpaid and unrecognized. The cumulative effect of these conditions during the formative years of their life leads to women becoming marginalized in their old age as compared to their male counterparts. Women in general and older women in particular have lower status in the family and society thereby has restricted access to family or social support system. They continue to remain care providers until such time that they are physically active. Widows are the worst affected by social customs.

Widowhood in India is often described as a definitive and tragic phase in a woman's life, in which her identity is stripped away with the death of her husband. The Laws of Manu' (*Manusmriti*), an influential text in Hindu Scripture, had created a set of structured gender relations in the Brahmin caste. Included in the text are the statutes that a widow must remove all adornments, observe fasts, eat limited meals each day, forgo hot foods, replace the red sindoor on her forehead with ash from her husband's funeral pyre and observe tonsure (Zola, 1991). The same text also pronounces that a woman who is widowed cannot remarry. The ideal Hindu widow remains with her in-laws – a result of the patrilocal system of marriage in most of India – embodying this state of holy asceticism. This system of marriage places women in a situation of vulnerability after their husband's death, particularly if they do not earn income, they can neither re-integrate with their parental family, nor do they necessarily receive adequate support to live contentedly in their husband's village. Sometimes because of the financial

considerations many widows from lower-income families are not able to remain in the house of their in-laws without working or, in some circumstances getting remarried.

Widowhood, an inevitable life event for many older women has an impact on their psycho-social status. Consequent upon widowhood, many older widows are vulnerable to the development of psycho-social problems and low self-esteem. The proportion of widows in the population of 60+ years is gradually increasing. Women in the later years of life have been subjected to many hardships like economic dependency, emotional insecurity, and social estrangement, especially due to loss of spouse. However there are a growing number of elderly widows who are the victims of the triple neglect and discrimination on account of gender, age and widowhood. Widowhood is both a crisis and a problem. In the suddenness and in the sea change that it wroughts in the life of a woman, it is a crisis. As the woman tries to cope with the implications, it becomes a problem. Widows are prone to face social stigma and ostracism.

In India, as in many parts of South Asia, widowhood is viewed not as a period in the life cycle of a woman, but as a personal and social aberration, to be devoutly wished away. This attitude to a great extent governs the social, cultural and even economic implications of widowhood. In the Indian psyche, there is acceptance of the inevitability of death, but the natural inevitability of the death of a spouse (husband) is often glossed over. This inherent contradiction motivates the cultural non-acceptance of widowhood. In a society totally governed for centuries by patriarchy, discrimination on the basis of sex exists in almost every political, economic, social and legal institution. In such a situation the Indian widow is triple discriminated against, as a woman, as a widow and as a poor widowed woman.

As per Census 2001, there are 342.9 lakhs (7.38 per cent of the total population) widows in India. Of them 72.75 per cent are in rural areas.

This paper analyses some of the neglected dimensions of old Indian widows who are assumed away by society.

Feminists have consistently seen the family as the centre of women's oppression even though the form and content of the familial

structure and ideology would vary cross-culturally. A woman's status, role and self-image vary with her stage in the family life cycle. The family life cycle is a succession of stages that the family passes through from its formation to dissolution. Each demographic event – marriage, parenthood, migration, death and widowhood makes a stage in the life cycle. The family life cycle covers the changes in size, composition and functions of the family over its life time. The family is said to come into existence with marriage of a couple and ceases to exist with the death of the surviving spouses. Widowhood is a possible event in the life cycle of every woman who stays married.

Widowhood and gender are strongly linked. Feminization involves segregation by sex in widowhood. Feminization of widowhood is not merely that widows are now more in number or outlive the widowers, but that all widowhood takes on the characteristics of widows, namely discrimination, dependence, oppression, health problems, etc. Patriarchy as an ideological construct interacts with capitalist processes and reinforces specific constraints on women physically as well as mentally which permeates the understanding that women are principally housewives and mothers and subsidiary workers even after the death of their spouse and in which men dominate, oppress and exploit women.

The practices and treatment associated with widowhood varies from culture to culture. Even within India different religions, different castes have different practices which are based on what the widow experiences in her relationships with others perception and the manner in which she perceives herself i.e. what we call as reflected appraisal.

Keeping this in view, the present study was planned with an objective to examine the problems of Elderly widows in Odisha with some neglected dimensions.

### **Objectives of Study**

1. to study the socio-economic background of widows.
2. to ascertain the changes in cultural practices due to widowhood.
3. to assess health problems, socio-economic problems and psychological problems of the widows,
4. to assess their attitude towards life and their suggestions for the welfare of the widows.



## Method

For the present study data were collected at Lord Jagannath Temple, Puri, the Pilgrim city of Odisha in the month of Kartik (From 4<sup>th</sup> October 2009 to 4<sup>th</sup> November 2009, from Kumar Purnima to Kartk Purnima). The study was confined to 160 elderly widows. The sample was purposive.

The requisite data was obtained through interview technique. For interviewing the subjects a structured Interview Schedule was prepared and used. The widows were approached individually and the responses received from them were recorded in the field itself.

The study is based on descriptive-cum-exploratory research design. Data were analyzed through SPSS package.

## Findings

### Socio-economic Profile of the Respondents

Data in Table 1 reveals that majority (55.6 per cent) of the respondents belong to age group of 65 to 70 years followed by 60 to 65 years (39.4 per cent) and 70 and above 70 years are of hardly 5 per cent. As regards to their education, majority of them were illiterate (53.1 per cent). 8.8 per cent of them were educated up to Matric level, only 3.1 per cent were Graduates and above. More than half of the respondents (63.8 per cent) had a joint family set up, 36.2 per cent of the respondents were having a nuclear family set up. As regards to the number of children of the respondents, more than 50 per cent (61.9 per cent) of the respondents were having four or more than four numbers of children, 19.4 per cent were having three numbers of children, 8.8 per cent of them are having two numbers of children, 5.6 per cent of them had only one child. 4.3 per cent of the respondents were found to be issueless. It was also observed that about 19.4 per cent of the respondents were maintaining their livelihood through begging, 8.8 per cent were maid servants, 10 per cent of the respondents were found to be the caretakers, 61.8 per cent of the respondents were having no occupation. It was also revealed that 41.3 per cent of the respondents were staying with their in-laws, 21.9 per cent were staying with their sons, 13.1 per cent of them were staying with their daughters, 10.6 per cent of the respondents were staying with their brothers, 13.1 per cent

were staying in old age homes. Most of the respondents (74.4 per cent) were from rural areas and 25.6 per cent of the respondents belonged to urban and semi-urban areas.

**Table 1 : Socio-economic profile of the respondents**

Age	Widows N=160	Percentage (%)
60 – 65	63	39.4
65 – 70	89	55.6
70 & above	8	5.00
<b>Education</b>		
Illiterate	85	53.1
Up to Primary	56	35.0
Up to Matriculate	14	8.8
Graduate and above	5	3.1
<b>Family</b>		
Jt. Family	102	63.8
Nuclear Family	58	36.2
<b>No. of children of the widows:</b>		
0	7	4.3
1	9	5.6
2	14	8.8
3	31	19.4
4 & above.	99	61.9
<b>Present Occupation:</b>		
Begging	31	19.4
Maid Servant	14	8.8
Care taker	16	10.0
No occupation	99	61.8
<b>Staying with:</b>		
Staying with son	35	21.9
Staying with daughter	21	13.1
Staying with in-laws	66	41.3
Staying with brother	17	10.6
In old age home	21	13.1
<b>Area of residence</b>		
Urban & semi-urban	41	25.6
Rural	119	74.4

**Age at the time of marriage**

Age range		
Below 15 years	8	5.0
15-19	79	49.4
20-24	55	34.4
25-29	18	13.2
30 & above	0	0.0

**Age at the time of husband's death**

Age range		
Below 15 years	2	1.2
15-24	11	6.9
25-34	25	15.6
35-44	55	1.9
45 & above	5	34.4

**Duration of married life**

Age range		
0-4	6	3.7
5-9	11	6.9
10-14	43	26.9
15-19	41	25.6
20 & above	59	36.9

**Duration of widowhood**

Age range		
0-4	17	10.6
5-9	21	13.1
10-14	81	50.6
15-19	27	16.9
20 & above	14	8.8

As regards to the age of the respondents at the time of their marriage, it was found that majority of them (49.4 per cent) got married at the age between 15-19 years, followed by 34.4 per cent (20-24 years). 11.2 per cent of the respondents were married at the age between 25 to 29 years. 5 per cent of the respondents were married at the age of below 15 years. No one found to be married at the age of 30 years or above. It is also found that about 36.9 per cent of the respondents have enjoyed married life of about 20 years or more than 20 years, 25.6 per cent of them have enjoyed 15 to 19 years of married life, 26.9 per cent

of them have enjoyed 10 to 14 years of married life. Majority of them (50.6 per cent) have lost their husband since 10 to 14 years back. 16.9 per cent of the respondents became widows for last 15 to 19 years.

**Socio-Economic background of deceased husbands**

As regards to the educational background of their deceased husbands (Table 2), it is found that 38.8 per cent were illiterate followed by 25 per cent being educated up to primary level, 23.1 per cent up to Matriculate and 13.1 per cent were of graduates and above. As regards to the occupational backgrounds of their deceased husbands, majority of them (48.8 per cent) were the land labourers. 26.2 per cent were Govt./Private employees. 16.3 per cent were businessmen. As regards to the income background of the deceased husband, it is found that

**Table 2. Socio-Economic background of the deceased husbands of the widows**

Education of the deceased husband	Widows N=160	Percentage (%)
Illiterate	62	38.8
Up to Primary	40	25.0
Matriculate	37	23.1
Graduates & above	21	13.1
<b>Occupation of the deceased husband</b>		
Land owner	9	5.6
Business	26	16.3
Land labourer	78	48.8
Government/Private employee	42	26.2
Any other	5	3.1
<b>Monthly Income of deceased husband (in Rs.)</b>		
Below 1,000	28	17.5
1001 – 5,000	80	50.0
5,001 – 10,000	26	16.3
10,001 – 20,000	21	13.1
20,001 & above	5	3.1

half of them (50 per cent) were having a monthly income of Rs.1001/- to 5000/- rupees per month. Hardly 3.1 per cent of the deceased husbands were having monthly income of more than Rs. 20,000/- . 17.5 per cent of them were having monthly income of less than Rs.1000/-.

### Cultural Practices observed and Restrictions imposed

Table 3 deals with the cultural practices observed by the widows and restrictions imposed on them by the society. As regards to the change in their food habits, it is observed that most of the respondents (93.1 per cent) have been completely vegetarian after the death of their husband. Hardly 6.9 per cent of the respondents have not changed their food habits after the death of their husbands. It is also found that most of the respondents (93.1 per cent) are wearing simple white sarees and no one is wearing bangles since the death of their husbands.

When asked to know the reasons of change in their food habits and dressing pattern, most of the respondents (73.7 per cent) told that it is due to a ritual compulsion. 19.4 per cent have opined that they have lost their interest in food and dressing pattern after the death of their husband.

As regards to the restrictions imposed on them after the death of their husband, it is observed that about 80.6 per cent of the respondents have opined that they are not allowed to attend the naming ceremony of a new born baby, 86.2 per cent of the respondents have opined that they are not allowed to go near the bride or bridegroom, 86.2 per cent of the respondents have said that they are not allowed to enter into the marriage pendal, 61.9 per cent of the respondents have opined that they are not allowed to cook auspicious food.

### Ill-treatment and Humiliation

From Table 4, it is found that majority of the respondents (55.6 per cent) have not been humiliated due to the death of their husbands. 30.6 per cent of the respondents have expressed that they have been taunted and ill-treated due to widowhood. 13.8 per cent of the respondents have reported to be beaten and forced to starving. When asked to know who are the persons responsible for their ill-treatment, 23.1 per cent of the respondents blamed their in-laws. 11.9 per cent blamed the spouses of their children. 5.6 per cent of the respondents blamed their own children.

**Table 3. Practices observed & Restrictions imposed due to widowhood**

Food habits	Widows N=160	Percentage (%)
Completely Vegetarian	149	93.1
No change	11	6.9
Fasting during auspicious	160	100
<b>Dressing pattern</b>		
Wearing simple white sarees	-	93.1
No change	11	6.9
<b>Wearing of bangles</b>		
Yes	0	0
No	160	100
<b>Reasons of change in food habits and dressing pattern</b>		
Economically not sound	0	0
Lost interest	31	19.4
Ritual compulsion	118	73.7
Not applicable	11	6.9
<b>Restriction due to widowhood</b>		
i. Attending naming ceremony		
Allowed to touch new born baby:		
Allowed :	31	19.4
Not allowed:	129	80.6
ii. Attending marriage ceremony:		
a) Go near to bride and groom		
Allowed :	22	13.8
Not allowed:	138	86.2
b) Entering to marriage Pandal:		
Allowed :	22	13.8
Not allowed:	138	86.2
<b>Cooking auspicious food</b>		
Allowed	61	38.1
Not allowed	99	61.9

**Table 4 : Humiliation, Blaming & Ill treatment**

Types of humiliation	Widows N=160	Percentage (%)
Taunting	31	19.4
Ill treatment	18	11.2
Beating	6	3.8
Starving	16	10.0
No humiliation	89	55.6
<b>Ill treatment of widows</b>		
In-laws	37	23.1
Children	9	5.6
Spouses of children	19	11.9
Parental	3	1.9
Others	3	1.9
No one	89	55.6
<b>Persons blaming them for the death of husband</b>		
In-laws	51	31.9
Relation	20	12.5
Parents	0.0	0.0
None	89	55.6

When asked, who were the persons blaming them for the death of their husbands, most of the respondents (31.9 per cent) have replied that it is their in-laws who were frequently blaming them for the death of their husbands.

**Health Related Problems faced by the elderly widows**

From table 5, it is observed that all the respondents have health problems. It is also observed that most of the respondents have more than one health problems (multiple health problems). The main health related problems among the sample elderly widows are reduced vision (81.2 per cent), whereas problem in hearing is experienced by 48.12 per cent of the respondents. It is worthwhile to mention that in old age eye problems are more prominent than the problems of ears among the elderly. The other serious health problems which sample elderly widows are facing are dental decay (77.5 per cent), diabetes (65 per cent), Hypertension (65 per cent), Musculoskeletal system and connective

tissue disorders (65 per cent), disorder in circulatory system (43.8 per cent), disorder in digestive system (23.8 per cent), disorder in respiratory system (21.2 per cent), heart attack (7.5 per cent).

**Table 5 : Health Related Problems faced by the elderly widows:**

Health Problems	Widows N=160	Percentage (%)
Diabetes Mellitus	104	65
Eye (Cataract & reduced vision)	130	81.2
Dental decay	124	77.5
Disorder in Circulatory system	70	43.8
Hypertension	84	65
Heart attack	12	7.5
Disorder in Digestive system	38	23.8
Disorder in Respiratory system	34	21.2
Musculoskeletal system & connective tissue disorder	136	65
Loss of hearing	77	48.12
Others	56	35

- Circulatory system disorder includes diseases like Angina, Chest pain.
- Digestive system disorder includes Gall Stone, Peptic ulcer, duodenal ulcer, liver problems.
- Musculoskeletal system and connective tissue disorders include arthritis, rheumatic joint pain, back pain and osteoporosis.
- Respiratory system disorder includes bronchial asthma, tuberculosis and other pulmonary disease.
- Others include general weakness, Parkinson’s disease, anemia, cancer, kidney stone, dementia, burn and disability, gynecological problems.

It is also revealed from the data collected that the most common chronic problems of elderly widows are fever, cold and cough, asthma, respiratory infections, dysentery, visual impairment, cataract, hearing impairment, swollen feet and diabetes whereas the major diseases and

disorders of the elderly women are rheumatoid arthritis, Osteoarthritis, Osteoporosis, backache and muscular problems, hypertension, cardiovascular and pulmonary disease, nervous disorders, dementia, Alzheimer’s disease and depression, common reproductive health problems are pruritis vulvae, vaginal discharge, dyspareunia, uterus prolapse, cervical and breast cancer, anemia and manifestations of prolonged under-nutrition. From Table-II, it is also observed that 35 per cent of the respondents are suffering from old age diseases like dementia, general weakness, Parkinson’s disease and gynecological problems.

**Economic Problems**

Data in Table 6 depicts that 90 per cent of the respondents have said that increased medical expenditure was their major economic problem followed by lack of freedom on willful spending (85 per cent), lack of support from the family (73.8 per cent), liability of children (15 per cent).

**Table 6 : Economic Problems faced by the elderly widows**

Problems	Widows N=160	Percentage ( % )
Increased medical expenditure	144	90
Lack of freedom in spending	136	85
Lack of support from family	118	73.8
Liability of children	24	15

**Socio-psychological Problems**

Table 7 depicts the socio- psychological problems faced by elderly widows under study. Among these problems, declining authority is being experienced by majority of the respondents (77.5 per cent), whereas lack of respect within the family is being experienced by the minimum of the respondents (7.5 per cent). Not being involved in family affairs (70 per cent), being neglected by the family members (65 per cent), and feeling of being a burden to the family (63.8 per cent) are other important socio-psychological problems of the sample elderly widows. Women are basically emotional. They frequently go upset over small issues occurring within the family set up. From the analysis of the table,

it is also found that (61.2 per cent) of the respondents used to be upset over small issues easily and feel being disliked by their children in their peer groups (38.8 per cent).

**Table 7 : Socio-psychological problems faced by elderly widows**

Problems	Widows N=160	Percentage (%)
Declining authority	124	77.5
Feel neglected	104	65
Loneliness	56	35
Difference of opinion with family members	76	47.5
Not involving in family affairs	112	70
Feel a burden to family	102	63.8
Lack of participation in outside societies	40	25
Children’s disliking their presence in peer group	62	38.8
Lack of respect in the family	12	7.5
Get easily up set over issues	98	61.2

An attempt was made by applying chi-square test to find out the association between age of the respondents and with selected socio-psychological problems. (Table 7) Chi-square value being ( $X^2= 13.981$ ) at 1 per cent level of significance.

**Table 8 : Association of age with socio-psychological problems of elderly widows**

Age (years)	Loneli- ness	Declining authority	Difference in opinion	Easily upset	Lack of participation
60 - 65	28	86	36	66	12
65 - 70	20	30	36	26	24
70 & above	8	8	4	6	4

$X^2(8, N=160) = 13.981$

**Attitude of widows towards life**

Table 9 provides the information about the attitude of widows towards life. 55.6 per cent of the respondents have expressed that widowhood has changed their life completely. 38.8 per cent have said

that widowhood has changed their life to some extent. Hardly 5.6 per cent of the respondents said that widowhood has not changed their life. It is also found that 75.6 per cent of the respondents feel completely insecure due to the widowhood. Hardly 5.6 per cent of the respondents do not feel insecure due to the death of their husbands. It is also observed that 75 per cent of the respondents are acutely bothered about their future. Hardly 5.6 per cent of the respondents are not bothered about their future.

**Table 9: Attitude of widows towards life**

	Widows N=160	Percentage (%)
<b>Widowhood changed their life:</b>		
Completely	89	55.6
To some extent	62	38.8
No change felt	9	5.6
<b>Feel insecure :</b>		
Completely	121	75.6
To some extent	30	18.8
No feeling	9	5.6
<b>Feeling of what happens next:</b>		
Very acute	120	75.0
Some times	31	19.4
Not bothered	9	5.6

**Welfare of widows:**

Table 10 shows that almost all the respondents are of the opinion that widow pension should be given to the poor widows, they should be made aware of the facilities provided by the Government to the widows, society and people should treat them well. About 68.1 per cent of the respondents have opined that there should be provision of widow homes for their stay, 62.5 per cent of the respondents have opined that free vocational training should be given to the widows, 38.1 per cent of respondents have opined that exclusive Self Help Groups should be encouraged for their self-employment. It is also observed that 61.2 per cent of the respondents were not in favour of re-marriage of widows.

**Table 10 : Suggestions for welfare of widows**

Different suggestions	Widows N=160	Percentage (%)
Re-marriage should be encouraged	62	38.8
Widow's pension for poor widows	160	100.0
Society and people should treat them well	160	100.0
Free vocational training should be given	100	62.5
Exclusive SHGs for widows	61	38.1
Provision of widow homes	109	68.1
Job reservations for widows in Govt./ Private Institutions	115	71.9
Widows should be made aware of the facilities provided by the Government through Geriatric Welfare Services ((GWS)	160	100

**Analysis and Discussion**

The sample widows are drawn from diverse social backgrounds. Hence the views of widows about their status and role differ. Socio-economic background, cultural practices and restrictions imposed thereof, Ill-treatment and humiliations are important factors that decide the nature of the problems which widows have to face in their life, which also may explain the diverse ways of life of widows.

From the study it was observed that more than half of the respondents interviewed were from joint families (63.80 per cent), while 36.20 per cent were from nuclear families. Panda (1998) have brought out of a similar findings. Joint family still prevails in Odisha. This might be because of the fact that Odisha still remains as one of the under developed states; industrialization, urbanization and modernization are not flourished to that extent in comparison to other states. Social migration of youngsters being less when compared with other cities.

From the present study it was found that 41.3 per cent of the respondents were staying with their in-laws, 21.9 per cent were staying with their sons and 13.1 per cent of respondents were staying with their daughters.

Biswas's study (1987) of 13 villages in Giridih district of Bihar reports a different picture. His study was to find out the problems of aged population in India. He has reported that 88.36 per cent of aged lived with their sons. Biswas writes "In substance, therefore, sons were the first choice for old age care, and they were often referred to as old age insurance for which property was transferred to them as premium." In India a widow can not have a separate establishment, for she is culturally not trained to lead an independent life. The elderly widow has to live with her sons, over whom she has no authority. A widow's life in her family and with close relatives becomes miserable, if she does not have any control over property. Because of these financial considerations, many widows from lower income families are not able to remain in the house of their in-laws. (Mastey, 2009).

From the present study it is observed that about half of the deceased husbands (48.8 per cent) of the widows were land labourers. It is so because Odisha is mainly an agricultural state. Most of the people in the rural area depend on agriculture and work as land labourers.

In India, widows have been prohibited from participating in socio-religious functions because they are considered inauspicious. So most of the widows are of the view that they have been imposed of certain practices and restrictions relating to their food habits, dressing pattern, attending marriage ceremonies, naming ceremonies of the new born babies, etc. as the society conditioned to think that their presence will bring ill-luck to bride, bride groom and new born baby. Similar findings were also observed by Patil (2000), while studying the problems of Hindu widows in Dharwad, Karnatak.

With regard to the instances of humiliation, the findings indicate that a significant number (44.4 per cent) of the respondents were humiliated due to the death of their husbands. Similar findings were also observed by The Guild of Services (2002) while conducting a study on widows of Vrindavan (N=240) and Varanasi (N=84). The study revealed that the percent of respondents reported humiliation varies but the types of humiliation were of similar in nature.

From the study it was observed that all the respondents had health related problems (multiple problems reported by the subjects). The present findings are in line with those of Mahajan (2006) who also

reported that elderly people generally suffer from general weakness and poor eyesight. Similarly, the findings of Krishnaswamy and Aghababa (2007) also support the present results who reported that ageing is a process when deterioration of cardiovascular system takes place and bones lose their mineral content. Purohit and Sharma (1972) conducted a study of persons aged 60 years and above, numbering 521 in a group of Rajasthan villages during 1970. The clinical examination of the old people revealed that all of them were chronically ill at the time of the study. Multiplicity of diseases was normal among the respondents. Sengupta and Chakraborty (1982) carried out a study of 401 men above 55 years of age residing in the southern part of Calcutta (Kolkata). The data revealed that 75.6 per cent were found to be ill at the time of survey. 9 per cent were chronically ill and about 6 per cent were actually sick. Pathak's study (1975) is based on the post treatment analysis of the records of 1678 patients in the age range 60 years and above (both male and female) admitted in the Medical Research Centre of Bombay Trust Hospital during the years 1970 and 1971. It has been observed that a good number of patients had gone through more than one major illness in the past. The health problems in West Bengal was studied by Chakraborty (2005) in which he found that among the elderly (> 60 years) residing in a rural area neighboring to a cosmopolitan city showed that 72.6 per cent of the elderly were suffering from chronic illness.

From the study it was also found out that elderly widows were having economic problems like increased medical expenditure, lack of freedom in spending, liabilities of children. Lack of support from families was reported by most of the respondents (73.8 percent). Indra (1963) found that the old woman maintains her status if her spouse is alive. She further reported that old women particularly those of low socio-economic status had experienced more problems and vice-versa. It was also noticed that half of the aged were mainly dependent upon others even for meeting their economic needs.

From the study it was found that elderly widows were facing numerous socio-psychological problems like declining authority(77.5%), loneliness(35%), neglect by the family members(65%), differences of opinion with family members(47.5%), lack of participation in outside societies(25%) and feeling of being a burden to the family(63%). Mahajan (2006) also supports the present findings, who revealed that

elderly suffered with various socio-psychological problems like; loneliness, declining authority, lack of respect, strained family relations. Further, it was reported by him that proportions of females is more than that of males who suffer from these problems. Similarly Bakshi *et al.* (2007) also reported that aged females living with families were feeling emotionally unstable. Sijuwade (2008), in his study have observed that almost half of the respondents (48%) reported that their families do not take care of them and neglect physically, economically and emotionally.

From the study it is observed that there exists an association among the age of respondents and selected socio- psychological problems; Chi-square value being 13.981 and significant one. This might be due to change in family structure from Joint to nuclear and too busy routine of the children or may be modern generation do not feel any responsibility for their care and elderly feel lack of social interaction within and outside the family. The present findings are in line with that of Bhattacharya and Birla (2006) who have pointed out that changing pattern in family structure and too busy routine of young generation leave their elderly under stress.

With regard to the suggestions given by the respondents for the welfare of widows, the findings suggest that a majority (62.5 per cent) of them state that free vocational training should be given to the widows in order to make them self-reliant. 38.8 per cent of the respondents (mostly urban respondents) favour the remarriage of widows and 61.2 per cent of the respondents (mostly rural respondents) are not in favour of re-marriage of widows. Due to strong hold of socio-religious mindset of the respondents, remarriage of the widows is not favoured.

### Conclusion

The state of widowhood is a great calamity in a patriarchal and traditional society like India and patriarchy has played the biggest role in the total marginalization of widows. As widows, women suffer some of the most severe subjugation of their whole lives. Widowed women are harassed, abused and denied land and livelihood.

In India, women have to re-start an altogether difficult life after widowhood. In Hindu society the norms of widowhood are the norms of asceticism. There are restrictions on food habits, dress, re-marriage

of the widows. They are forbidden to attend socio-religious functions. They are also prohibited from wearing saubhagya insignia under any circumstances. They are culturally isolated and are made to spend their life in constant devotion to Gods. They are also separated from worldly affairs and pleasure. Many women see widowhood as a social stigma. They are discriminated as inauspicious. Exclusion of widows from full social acceptance brings about social isolation and reduces life chances. Their wants and needs are considered less valid than the married women. As a result they are treated as less than their married counterparts. The elderly widows are now more in number and face "triple jeopardy" that of being old, being female and being widow. It is patriarchy which controls and marginalizes them to the periphery, makes them powerless through discrimination, dependence, oppression. Hence patriarchy as an ideological construct interacts with capitalist processes to give specific constraints on the autonomy of elderly widows physically as well as mentally.

Society does not affirm even today for widow remarriage. Setting apart the laws, societal norms are strong here that a widow has to die as a widow whatever her age and surroundings be. In India women are born to suffer till their death. The sufferings of women are doubled if they happen to be widows in the Indian soil. Though social change is very fast due to the growing globalization, few areas remain unchanged and one of the areas where the change is very slow is the marriage and related customs.

Over the years, Government of India has launched various schemes and policies for older persons. These schemes and policies are meant to promote the health, well-being and independence of senior citizens around the country. This policy has resulted in the launch of new schemes such as:

- Strengthening of primary health care system to enable it to meet the health care needs of older persons.
- Training and orientation to medical and para-medical personnel in health care of the elderly.
- Promotion of the concept of healthy ageing.



- Assistance to societies for production and distribution of material on geriatric care.
- Provision of separate queues and reservation of beds for elderly patients in hospitals.
- Extended coverage under the Antyodaya Scheme with emphasis on provision of food at subsidized rates for the benefits of older persons especially the destitute and marginalized sections.

The Central Government in the 2007-2008 budget, the Finance Minister has proposed further benefit to senior citizens:

- The Reverse Mortgage loan scheme to extract value out of their property and lead a hassle free life by securing a regular income as loan against their existing property.
- Maintenance of parents and senior citizen bill, which provides for the maintenance of parents, establishment of Old Age Homes, Provision of Medical care and Protection of life and property of senior citizens.

The Government acknowledged the need for steps to be taken to address the needs of women in this act, stressing that sensitive initiatives for women within the elderly population needed to be taken to prevent them from becoming 'victims of triple neglect and discrimination on account of gender, widowhood and age'. Yet, no special strategies have been formulated. In India, the widow with the pangs of old age with its inseparable companions – poverty or reduced income and ill health join her to make the already miserable life even more miserable. Only specific widow-oriented programmes will be able to break the vicious circle.

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## A Study of Health and Subjective Well Being of the Aged

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### ABSTRACT

*With advancing age, there is decreased vitality and increased vulnerability to common diseases both acute as well as chronic. In a developing country like India, elderly people suffer from dual medical problems of both communicable as well as degenerative diseases. Subjective well-being refers to how people evaluate their lives, and includes variables such as life satisfaction, environmental mastery, lack of depression and anxiety and positive moods and emotions. The present study was conducted on randomly selected 300 aged living in Agra city. CMI (Cornell Medical Index) developed and standardized by Pershad & Verma (1973) was used to assess the health status and the questionnaires for assessment of subjective well-being were prepared by the investigator. The results show that senescent enjoy better health than senile aged ( $t=18.711$ ), male have better health than female aged ( $t=4.437$ ). Obtained results of subjective well-being show that senescent aged have better purpose of life than senile aged ( $t=4.698$ ) whereas senile aged have scored significantly higher on the remaining components as well as total subjective well being as compared to their counterparts. Results also show that the female population have better subjective well being as compared to male population ( $t=3.142$ ). Poor physical, emotional and total health of aged is significantly and negatively correlated to total subjective well-being.*

**Key words:** Aged, Health, Subjective Well Being

The number of people reaching older age is increasing globally. Today there are approximately 590 million people over the age of 60,

but in just 25 years that number will double to 1.2 billion. In recent decades, life expectancy has increased everywhere, especially in developing countries, where about 60% of all older persons aged 60 and over currently live. Sharp falls in birth rates in recent years have also contributed to the rapid increase in the proportion of older people in the total population. In India life expectancy has gone up from 20 years in the beginning of the 20th century to 62 years.

Old age is usually a period of declining physical health, the physical parameters at this sensitive stage of life are outcome of many variables such as hereditary factors, personal temperament, child births in females, the manner of living, educational background, health awareness, metabolic characteristics, environmental factors, vicissitude of living, nutrition level, infectious intoxication, gluttony, occupational influences, family composition, balance between work and rest, emotional stress, internal responsibilities, endocrine disorders and environmental conditions etc. these are some of the common causes that influence the rate of physical decline. Usually getting older is inferred as losing beauty, strength and vigour. Physical changes although occur throughout adulthood, they have inconsequential effect on a person's everyday life in the early and middle adult years. It is only in later life that the cumulative effects of such changes tend to catch up with the individual and begin to interfere with daily life patterns and habits.

Subjective well-being refers to how people evaluate their lives, and includes variables such as life satisfaction, environmental mastery, lack of depression and anxiety and positive moods and emotions. A person's evaluation of his or her life may be in the form of cognitions that refers to a situation when a person gives conscious evaluative judgments about his or her satisfaction with life as a whole, or evaluative judgments about specific aspects of one's life such as recreations or past performances and so on. Thus, a person is said to have high subjective well-being if he or she experiences life satisfaction and frequent joy on the other hand infrequently experiences unpleasant emotions such as sadness and anger. On the contrary a person is said to have low subjective well-being if he or she is dissatisfied with life, experiences little joy and affection and frequently feels negative emotions such as anger or anxiety.

Overall progress in material and worldly achievements has in return awarded the human race with many boons one of them widely experienced and seen is higher life expectancy. In spite of longer of lives they are not necessarily healthier and happier lives. The quality of life in these added years is reflected by level of subjective well being among aged. This fact deeply motivated the investigator to select health and Subjective well-being as the subject of the study of this growing section of society.

**Objectives**

- to assess the health condition of the aged,.
- to assess the subjective well-being of the aged and
- to assess the correlation between health and subjective well-being of the aged.

**Method**

The present study was conducted on randomly selected 300 aged between 65 yrs. to 85 years in Agra city. These subjects were divided in two groups on the basis of their age (young old 65-75 years and middle old 76-85 years) .

**Tools**

- 1) CMI (The Cornell Medical Index) health questionnaire developed and standardized by Wig, Prashad & Verma (1985) was used to assess the health status. The tool is standardized and its reliability and validity has been worked out. Higher scores are indicative of higher health distress and therefore poor health.
- 2) The questionnaires for assessment of subjective well-being were prepared by the investigator. It is divided in six dimensions or components. These components are : Purpose in life, Environmental mastery, Happiness, Autonomy, Self-acceptance, Trusting ties with others. The calculated reliability and validity of the subjective well-being was 0.88 and 0.85 respectively.

**Results and Discussion**

The collected data were analyzed and the results are presented in the following tables :

**Table 1: Showing mean, S.D. and ‘t’ values on health components among the young old (65-75 yrs.) and middle old (76-85 yrs.).**

Components ofHealth n =	Young old		Middle old		Statistical Values	
	Mean	S.D.	Mean	S.D.	T	p
Physical	71.24	8.39	86.02	8.14	15.211	<0.01
Emotional	27.65	3.79	36.18	3.60	19.596	<0.01
Total	98.89	11.50	122.20	9.24	18.711	<0.01

Table 1 above shows mean, S.D. and t value of obtained health score from aged of two groups one of 65 yrs. to 75 yrs. (Young old) and other of 76 yrs. to 85 yrs. (Middle old). All the indicators show that the chronological decline in physical, emotional and total health of the aged is higher among the senile subjects than the senescent subjects.

The decline in physical health is due to the advancement of age. It is a well-known phenomenon that the physical health of the aged people shows great decline in later years of life as compared to early stage. Along with some chronic physical health problems usually senile aged also experience organ or multi organs dysfunction, disorder or failure. Ramamurti and Jamuna (1993) have also stated that old age is associated with ill health, physical and sensory impairments, heightened sensitivity and increased susceptibility to disease.

**Table 2: Showing the mean, S.D. and ‘t’ values on health components among aged male and female population.**

Components of Health N=	Male		Female		Statistical Values	
	Mean	S.D.	Mean	S.D.	t	p
Physical	74.12	8.61	80.30	12.11	5.050	<0.01
Emotional	30.34	5.13	31.93	5.91	2.477	<0.05
Total	104.46	13.29	112.23	16.66	4.437	<0.01

Table 2 indicates the mean, S.D. and t value of physical, emotional and total health of male and female among the aged population under study. Females show higher health scores as compared to males. The significant t values of physical, emotional and total health are 5.050, 2.477 and 4.437 respectively, they clearly show that physical, emotional and total health of male population is significantly better and improved as compared to the female population.

The above table shows poor physical, emotional and total health status of females than the males. In India the gender bias at early as well as later life is a common problem, where women may downplay their morbidities, attempt home remedies and seek traditional medical treatment before reaching the modern health care system. It seems that women have not only poor access to the health care system but are inclined to use it less. Poor health and gender discrimination always has adverse emotional effects. Several health problems afflict elderly women such as changes in the skeletal, cardiovascular, nervous, skin, genito-urinary and gastro-intestinal systems caused by declines in ovarian hormonal levels triggered by menopause. Due to the absence of ovarian steroids, chronic diseases such as osteoporosis, coronary heart disease and cerebro-vascular develop (Tinker *et al.* 1994).

**Table 3 : Showing the mean, S.D. and 't' values on subjective well being scores of Young old and Middle old.**

Components of Subjective Well-being	Young old n= 176		Middle old n=124		Statistical Values	
	Mean	S.D.	Mean	S.D	t	p
Purpose of life	18.47	4.12	16.31	3.62	4.698	<0.01
Environmental mastery	19.60	3.46	20.60	4.05	2.296	<0.05
Happiness	18.51	5.32	22.38	5.64	6.052	<0.01
Autonomy	22.56	3.08	23.74	3.11	3.255	<0.01
Self Acceptance	25.35	2.93	27.10	2.28	5.568	<0.01
Trusting Ties with others	21.11	4.74	23.73	4.84	4.673	<0.01
Total Subjective Well-being	125.60	12.11	133.76	14.34	5.322	<0.01

Table 3 shows the mean, S.D. and 't' values on subjective well being obtained from studied group of senescent and senile aged. Mean score is found highest under self-acceptance in both the groups whereas both groups have scored the lowest on purpose of life. The senescent group with mean score of 18.47 has better purpose of life than their counterparts with mean score of 16.31. The calculated 't' value is (4.633) which shows significant difference between both the mean scores of purpose of life. The mean scores of senile group for environmental mastery (20.60), happiness (22.38) autonomy (23.74), self acceptance (27.10) and trusting ties with others (23.73) are found to be higher than the senescent group with respective mean scores (19.60), (18.61), (2.56), (25.35) and (21.11). The 't' values on purpose of life (4.698), environmental mastery (2.296), happiness (6.051), autonomy (3.255), self-acceptance (5.568) and trusting ties with others (4.673) show significant differences between the mean scores. Senile group has scored significantly higher than their counterparts on total subjective well being, this significant difference is evident from the obtained 't' value 5.322.

As people grow older their expectations, ambitions, mystifications, liabilities, responsibilities and area of operation get smaller, by the time they emerge as more rational, practical, religious, seasoned and stable human being. Aged of different age group perceive different level of subjective well-being. In the present study senescent show significantly higher purpose of life as compared to senile, whereas for environmental mastery, happiness, autonomy, self acceptance, trusting ties with others and total subjective well-being senile scored significantly higher than their counterparts. During senescence, aged have many pending responsibilities and duties and they are supposed to look for means and resources to fulfill them. Such state of affairs make them purpose oriented whereas people in later aged life are left with fewer purposes in life. The wide difference in purpose orientation reasons before senescent and senile aged is the reason of significantly higher 'purpose of life' among former against later. 'Purpose in life' and 'personal growth', show down ward trajectories with age (Ryff 1999). Senile aged remain exposed to smaller area and people, due to limited mobility and less active life style, there is reduced social conformity, for self assessment they rely more on personal evaluation, whereas senescent cannot afford to turn a blind eye towards other's judgments (Bhumika 2002). Senile are hardly subjected to the criticism or behavioral

compliance, they tend to have mastered their limited environment and operations. Such a feeling of command give them higher sense of 'autonomy' and environmental mastery'. There is diversity of patterns in the dimension of psychological well being vis-a-vis age. Dimensions like 'environmental mastery' and 'autonomy' have repeatedly shown incremental patterns with age (Ryff 1999), as was also observed in the present study. Senile in their later aged life become accustomed to the fact of their becoming aged, limitations attached to this period of life and everlasting feature of old age. Such an acknowledgement and acceptance make them more realistic and comfortable to live with old age. There was a greater self-acceptance in the old-old group than in going old group (Bond 2000). Self-acceptance motivates them to have positive and trusting relations with understanding and deep sense of affection with others. Limited needs and wishes along with the spiritual mind set and positive self acceptance of aged is a significant variable contributing to happiness in old age. Empirical studies on the effects of age on subjective well being indicate that older people in general are more positive in their evaluations of overall life quality.

**Table 4: Showing the mean, S.D. and 't' values on subjective well being score of the aged males and females.**

Components of Subjective Well-being	Male n= 143		Female n=157		Statistical Values	
	Mean	S.D.	Mean	S.D	t	p
Purpose of life	18.36	3.95	16.79	4.04	3.398	<0.01
Environmental mastery	20.18	3.65	19.85	3.83	0.762	>0.05
Happiness	18.52	5.58	21.56	5.57	4.717	<0.01
Autonomy	23.14	3.20	22.96	3.10	0.495	>0.05
Self Acceptance	26.07	2.81	27.02	2.01	3.390	<0.01
Trusting Ties with others	22.20	4.95	23.11	4.81	1.614	>0.05
Total Subjective Well-being	126.41	13.47	131.30	13.46	3.142	<0.01

The above table 4 is projecting the mean, S.D. and 't' values on subjective well being scores of the aged males and females. The scores of the two groups in the table show that there is difference in mean values of two groups. The mean values of males (18.36, 20.18, 23.14) are higher than mean value (16.79, 19.85, 22.96) of females on purpose of life, environmental mastery and, autonomy. The obtained 't' value 3.398 of purpose of life shows that males have scored significantly higher in purpose of life. Females have scored higher than males on happiness autonomy, self acceptance and trusting ties with others .The obtained 't' value for happiness, self acceptance and trusting ties with others and total subjected well being are 4.717, 3.390, 1.614 and 3.142. The 't' value of happiness, self acceptance and total subjective well being is significant at 0.01 level. It is evident from the above data that the female population have better subjective well being as compared to male population.

Due to prevailing gender discrimination in Indian society, females, find subdued treatment and opportunities as compared to male, throughout their life on different platforms and occasions. Female play varied and inconsistent roles and enjoy lesser dominance, liberation and exposure levels than their counterparts. Likewise aged male and female show wide raging sensitivity to subjective well-being and its components. Sex differences were found as males and females differ significantly with regard to self-concept discrepancy and life satisfaction (Chadha, 1990). Because of dominating position and higher decision making role male aged perceive significantly higher 'purpose of life' as compared to the female aged, they still identify purpose in their lives, which might give them an enthusiasm and mental strength to go-on, this perhaps is the reason for perception of higher purpose of life in male respondents. Male and female usually play different roles and enjoy sufficient monitoring, control and autonomy over their respective areas of operations. In the present study aged female show significantly higher level of 'happiness' as compared to aged male. Female are emotional and family oriented, they feel satisfied and contented by small

happenings and achievement of domestic goals whereas male are outgoing and have different satisfaction and happiness yardsticks as of females. Graney (1975) found elderly women focusing on happiness as a criterion of well-being. In a study self-acceptance was found to be an important and significant variable for contributing happiness in old age (Ramamurthi 1994), according to the results of the present study the vice-versa of above function is also true, as aged female respondents showing significantly higher level of 'happiness' are also significantly high on 'self-acceptance. Aged female are keener to improve interpersonal relationships and trusting ties with others as compared to aged male, however the difference in 'trusting ties with others' is not found statistically significant. Women show more positive profiles on well-being as compared to men (Ryff 1995). French *et al.* (1995) has also reported the same fact about greater well-being among woman than men. It is a right place to highlight the resilient character of aged female in Indian society and discard the myth about lower subjective well-being among female aged.

**Table 5: Showing the correlation between total health and components of subjective well-being.**

Parameters	Statistical Values				
	Mean	S.D.	r	t	p
Total Health *	31.17	5.61			
Purpose of life	17.54	4.07	-0.140	2.441	<0.05
Environmental Mastery	20.01	3.75	+0.021	0.363	>0.05
Happiness	20.11	5.78	-0.176	3.086	<0.01
Autonomy	23.05	3.15	+0.111	1.928	>0.05
Self Acceptance	26.07	2.81	-0.229	4.061	<0.01
Trusting Ties With Others	22.20	4.95	+0.186	3.268	<0.01
Total Subjective Well-being	128.97	13.68	-0.178	3.123	<0.01

\* Any increase in the mean score of the component shows poorer or declining health.

Table 5 illustrates the correlation values between (poorer) total health and subjective well-being and its different components among

the aged. From the above table it is evident that (poorer) total health is negatively related to purpose of life and positively related to other components of subjective well-being which are happiness, autonomy, self acceptance trusting ties with others and total subjective well-being. All the components of subjective well-being except environmental mastery are significantly correlated to total health.

In the present study poor health (Poor physical, emotional and total health) show negative correlation with total subjective well-being and its components-purpose of life, happiness, self acceptance and trusting ties with others. Life satisfaction relates to subjective well-being, which in turn is strongly associated with health (Bragman 2000). As observed by Ravindran (1998), for aged illness poses a deep threat to their well-being. Keen (1996) stated that life satisfaction for the elderly is too often measured in terms of objective conditions like having enough money and being in good health. In tune with the observations of many studies the present study also subscribe to the view of negative relationship between poor health and subjective well-being among aged, it can also be said that health or good health is positively related to subjective well-being.

Poor physical health of aged under the present study shows significantly negative relation with total subjective well-being along and its components purpose of life, happiness and self acceptance. It is found that along with other things, well-being is positively correlated with sustaining physical health (Goldstein 2005). An association between health status and well-being seems intuitively clear. Sickness is often associated with displeasure or pain, so the presence of illness might directly increase negative affect. Further, illness often presents functional limitations, which can detract from opportunities for positive affect and life satisfaction (Ryan 2001). Aged suffering with deteriorated health status is bound to have lower purpose of life and lower self-acceptance to their subdued state of affairs. People in poor health are less satisfied with their lives than those in good health (Mannell and Zuzanek, 1999). However poor physical health of aged show significant and positive relation with component trusting ties with others, it may be a compelling situation for them as aged with declined health has no option but to rely and trust others instead of applying their free and independent discretion.

## Conclusion

On the basis of the obtained results it is concluded that health of the aged declines chronologically, health of the aged female population is poorer as compared to aged male population. Scores of subjective well-being show that senescent aged have better purpose of life than senile aged, whereas senile aged have scored significantly higher on the other components as well as total subjective well being as compared to senescent aged. Results also show that the female have better subjective well being as compared to male population. Poor total health of aged is significantly and negatively correlated to total subjective well-being. Illness and diseases in aged are mostly chronic and of long term, as health problems start from young age but they are usually overlooked. Health status of an aged is an outcome of many variables, health has deep impact on the overall long life journey, it is suggested that suitable precautions and timely awareness as to physical health results in better quality of life in old age. Human beings are inevitable to grow older therefore ageing is an issue that concerns us all. As being healthy is the key for higher subjective well being, so one should remain healthy to be able to honorably welcome and commemorate the natural process of aging.

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## Knowledge and Attitude of Adolescents Towards the Elderly

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### ABSTRACT

*This study focuses its attention on various factors that influence the attitude of the adolescents towards elderly. The co-efficient of the co-relation 'r' computed between knowledge of ageing process and related problems, and, attitude of adolescents towards elderly, indicates that there is positive co-relation at <0.05 level of significance ( $r=0.0001$ ) implying that when the adolescents are better 'informed' about physical and physiological changes that take place as a result of ageing and the discomforts and problems these changes are likely to create for the aged, they are likely to develop a better understanding of the elderly and exhibit a more tolerant attitude towards the elderly.*

### Key words: Adolescent, Attitude

Individuals enter and play a variety of roles throughout their lifetime, and each role is accompanied by a specific set of personal relationships as Kahn and Antonucci (1981) have illustrated in their 'Metaphor of the convoy' network. In old age, one's personal network reflects the transitions earlier in life affecting the opportunities and individual choices to maintain and develop relationships. These life course differences not only produce differences in the networks of older adults, they affect the dynamics of these networks as well (Glaser *et al.*, 2002)

In old age, the process of making and losing relationships goes on leading to changes in the size, composition and functioning of the network.

Like in Japan (Hashimoto 1996), cultural traditions have maintained a relatively high degree of social integration for the aged in India. Social relations in India are governed by vertical hierarchy (grandparents, adult children and grandchildren) as well as horizontal relationships (friends and other voluntary associations). The social ties (spousal presence, living with children, contact with friends, neighbors, relatives, and participation in community groups) constructed and maintained throughout one's life span determine social support network and successful ageing.

Ageing as a process of physical transition, as a transition in relationships and quality of life, how family and society cope with the aged and their changed roles and also how family and society meet the needs of the aged.

### Purpose of the study

The present study was aimed at comparing the knowledge and attitude of adolescents towards the elderly to find out an association between them.

This study focuses its attention on various factors that influence the attitude of the adolescents towards elderly which is a determinant of future family network, with a view to improve the intergenerational relationship and social support network.

### Objectives of the study

1. To assess the knowledge of adolescents towards ageing process and problems associated with it.
2. To determine the attitude of adolescents towards the elderly.
3. To compare the attitude of adolescents who live with the elderly with those who do not.
4. To compare the attitude of male and female respondents.
5. To determine the relationship between attitude of the adolescents with selected demographic variables related to parents. (i) Education (ii) Occupation (iii) Income (iv) Family type (v) Residence (urban / rural )



6. To determine the relationship between attitude of the adolescents with the variables related to the elderly (i) age (ii) sex (iii) education (iv) occupation/income (v) health status (vi) dependence in ADLs (vii) participation in psycho-social activities.

### Conceptual framework

The conceptual framework for the study is based on the systems elements of Input, Process and Output model. It is a simple and logical structure based on cause and effect depicted in a modified fish bone (Ishikawa) diagram. It identifies adolescent's conscience, motives and internalized social norms and values and elders' view about the way they are being cared, as internal stimuli; and parental expectations, peer pressure, role conflicts, proximity and health status and behavior of the elderly as external stimuli. These stimuli affect the interpersonal relationship, interaction of adolescents with the elderly and reciprocity between the two. If these interactions are satisfactory, a healthy, positive attitude is formed towards the elderly, which leads to approach tendency. However, if the interrelations and interactions are not satisfactory, an unhealthy, negative attitude develops towards the elderly, which leads to avoidance and escape tendency.

### Methodology

**Design:** The descriptive co-relational survey approach was considered to be relevant with the purpose of the study. The purpose of descriptive co-relational design is to examine the relationships that exist in a situation (Burnes & Groove 1997).

### Sample

The target group of population for the study was adolescents. The students studying in the 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> standards of general education and under graduate as well as diploma courses of general and professional education fall under the category of adolescents i. e. between 15 and 20 years of age.

Hence, one Junior College in which both male and female students studied in the 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> standards, and one Diploma Nursing School (10+2 students study 3 year Diploma), were the accessible population selected for the study.

The study sample comprised of both male and female adolescents between the age of 15 – 20 years studying in Junior Colleges and Diploma Nursing courses.

The criteria for selection of sample were:

- Adolescents between 15-20 years of age
- Both male and female
- Willingness to participate in the study

The sample consisted of a total of 413 adolescents, out of whom 77 were males and 336 were females. All the students studying in the 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> standards were from English medium background. Most of the students in the Diploma Nursing program were from Kannada medium background. However, the latter receive their Nursing education in English medium.

Purposive sampling technique was used to select the sample for the study. Informed consent was obtained from the participants and permission to conduct the study was obtained from the heads of Institutions.

**Data collection :** A demographic pro-forma, a knowledge questionnaire with 30 dichotomous questions and an attitude scale (Likert's 5 point) with 71 items were used for collecting data. Content validity and reliability were confirmed by sending the tools to 5 experts and incorporating their suggestions. Data were collected personally by the researcher. Descriptive and inferential statistics were used for data analysis

### Findings and Analysis

The study indicates that the adolescents in the sample did have some knowledge about aging process and age related problems (total scores 60, mean score 48). It was also observed that majority of the adolescents showed a positive attitude towards the elderly (total scores 355, mean – 249.21). Even though a large number (77.72%) of respondents belonged to nuclear families, they had positive attitude towards elderly. This is attributable to the influence of culture, rural community background (60.3%) and closer neighborhood relations that play an important role in better acceptability of the elderly than the loosely integrated neighborhood relations.

Study findings suggest that those who possessed better knowledge about aging process and related problems, exhibited a more positive attitude towards the elderly ( 'r' = .0001 at < 0.05 level of significance).

The adolescents could distinguish the positive and negative aspects of the aged, relating to the roles of the elderly and their problems. They could also recognize their own responsibility towards the elderly. The respondents from the rural background showed a higher understanding of the elderly than their urban counterparts.

The study also found that variables like duration of stay with the elderly, type of family, place of residence, number of elderly in the family, their age and ability to participate in psycho-social activities did not show positive association in the attitude of the adolescents towards the elderly.

It is heartening to note that the adolescents are able to recognize both the dimensions relating to the aged i.e. role of the elderly in the family structure as well as their responsibility to provide care for the elderly. Gender wise, the female respondents demonstrated higher attitude scores on 'roles' and 'caring' for the elderly. The larger number of females compared to males could have had an influence on the overall positive attitude scores.

### Conclusion

The findings indicate that when the adolescents are better 'informed' about physical and physiological changes that take place as a result of aging and the discomforts and problems these changes are likely to create for the aged, they are likely to develop a better understanding of the elderly and exhibit a more tolerant and positive attitude towards the elderly.

### Implications

Moral and value education must be an integral part of curriculum in schools and colleges. Also of equal importance is parental guidance and counseling, for, most of the actions and reactions of children are the mirror images of what they see in and experience from their own parents.

The way adolescents - as indicators of what happens to the elderly - view old people, can affect the care of the elderly and more importantly

it can affect the way they (adolescents) view their own aging process. An opportunity needs to be created for the younger generation to mix with senior citizens in order to remove negative stereotypes about the latter.

The governments and the NGOs should take initiative to mobilize and utilize the strengths and talents of all ages to meet the needs of the community through intergenerational interactions at school level as well as community level.

As we all must age and eventually die, any cultural belief system that cannot provide security, meaning, self esteem for those who reach the conclusion of life's natural sequences, will eventually have to change (Simone de Beauvoir 1970).

The family is the first and most intimate level of multigenerational relationship where all tend to invest in one another and share in the fruits of that investment; it has been termed the 'first resource and the last resort' for its members. Families however, are experiencing demographic, cultural and socioeconomic changes with implications for intra-familial relationships, including in care giving. The changes both challenge and bring opportunities to multigenerational relationships.

Communities can facilitate multigenerational relationships, both within neighborhoods and between special interest groups such as organizations of elders and youth. Communities can also facilitate communications between younger and older generations, particularly in the exchange of new and old technologies and new and traditional life styles. Intergenerational experience in leadership and technology training provides learning and skill development for both the groups, leading to a positive change in attitude towards the other generation (Kolodinsky *et al.*, 2002).

### Limitations

The study was confined to one secondary school and one professional school of Udupi district and hence the findings are confined to these two sample groups.

### Recommendation

In the light of the findings of the current study, the following recommendations are made:

1. The present study may be replicated on a larger sample.
2. A reverse study to assess the attitude of elderly towards the adolescents may be attempted.
3. A study on 'role of social support on life satisfaction in the elderly' will be of interest
4. A comparative study of elderly living in their own homes and those living in geriatric homes with regard to their attitude towards their grand children may throw light on the differences.
5. More research needs to be conducted on the existence of ageism, its cause, context and underlying dimensions, and effects.
6. A study of what roles the adolescents have in their homes towards the elderly living with them.

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