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**ORIGINAL ARTICLE****Economic Dependency and Depression in Elderly***Charchit P. Mehta<sup>1</sup>, Atul V. Desale<sup>1\*</sup>, Vandana A. Kakrani<sup>1</sup>, Jitendra S. Bhawalkar<sup>1</sup>**<sup>1</sup>Department of Community Medicine, Dr D. Y. Patil Medical College, Pimpri-Pune- 411018  
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**Abstract:**

*Background:* Aging has become greatest challenge globally. In developing countries including India elderly population (persons aged 60 years and above) is projected to outpace the rich world resulting in 50-80 percent of them expected to be staying in resource constraint countries. By 2050 of the total population more than 20 percent will be elderly. Depressive illness associated with dementia is one of the important problems in elderly. With increase in longevity there will be sharp rise in old age dependency ratio which can drain the resources in any country due to expenditure on health, social security and education. *Aim & Objectives:* The present study was carried out to assess the extent of degree of depression in elderly and study the associated factors like economic dependency. *Material and Methods:* Randomly selected subjects were administered the questionnaire of Geriatric Depression Scale (GDS), in the Geriatric Clinic of a tertiary care hospital, to categorize them based on the scores, into mild, moderate and severe. Some of the factors were studied and analysed to find out their association with depression like working status, socioeconomic status and economic dependency. *Results:* Proportion of elderly having depression was 52.4% with females outnumbering males. Depression seems to be more in those elderly who were not working, were from low socioeconomic status and not having pension as 38.6% who had no pension were depressed. Moderate to severe depression was more in economically dependent (20%) as compared to those who were independent financially. *Conclusion:* Economic dependency seems

to be important associated factor responsible for depression in elderly along with other factors like socioeconomic status, pension status etc. Implementation of adequate health services and social security system is needed to prevent the marginalization of elderly.

**Keywords:** Elderly depression, GDS, Economic dependency.

**Introduction:**

By 2025 the elderly population globally is expected to rise more than 1.2 billion with close to 75% of it in developing countries thus making population ageing a great challenge [1]. Aging is a more recent phenomenon in developing countries that is outpacing the rise in elderly population in rich world due to which 50 to 80 percent of elderly will be living in these countries [2]. Rapid economic and social changes in recent years, including migration and urbanization of non-elderly adults, have weakened the foundations of the joint family system, leaving the elderly in vulnerable economic conditions [3].

Due to improved life expectancy at all ages and decrease in fertility rates, there has been increase in elderly population in India as well. This demographic aging has resulted in India becoming home for millions of people aged 60 years and above [4].

Among the age related health problems in elderly, one of the most important problems is depression. The cost of taking care of a person with depression associated dementia in India is roughly more than 43,000 Rupees per annum, thus putting their families under extra financial stress [5].

The overall prevalence rate of depressive disorders among the elderly is 10 to 20%, the variation depending on the cultural situations as per the World Health Organization [6, 7]. Among the disability due to chronic diseases, depression in elderly is expected to become leading cause along with ischemic heart disease [8].

With increase in longevity there will be a sharp rise in old age dependency ratio. The biggest absolute increase by 2050 will be in Japan where ratio of 35.1 percent in 2010 will be doubled to 73.8 percent, while in China pensioners will be 38.8 percent of its labour force i.e., up from 11.6 in 2010 [9].

Economic dependency of the population with high dependency ratio can drain the resources in a country due to expenditure on health, social security and education. The relatively faster increase in the elderly population in India will contribute to a higher dependency ratio of the population in the non-productive age group. The old age dependency ratio in India showed an increasing trend from 10.9 % in 1961 to 13.1% in 2001. About 65 percent of aged depends on others as per NSS survey 2004. Of these 85 % were dependent on their own children [10]. Therefore, responsibility for caring for the elderly will fall either on young wageearner which is the productive part of population or on the government. But at the same time there are sixty

plus elderly who are independent while many of those so called working age group are actually not working. Therefore 'economic dependency ratio' seems to be important to assess the demographic and economic status of elderly population.

This study was undertaken to find out the associated important factors like economic dependency among the depressed elderly.

#### **Material and Methods:**

Randomly selected patients attending the geriatric clinic at tertiary care hospital were included in the study and the information about their identification, their socio-economic variables, pension status, economic dependence etc was collected. The socio economic status was found out by Kuppuswami Scale (Kuppuswami B, 1981: income ranges for 2012) [11].

Informed consent was obtained before the information was collected. Institutional Ethics Committee clearance was obtained before starting the study. It was a hospital based study where patients above 60 years of age and of both sexes were interviewed for a period of two months. Considering the prevalence of depression in elderly as 25%, sample size was taken as 75 and a total of 100 elderly were studied. Those not willing to participate in the study, patients with severe mental deterioration, severe cognitive impairment, deafness or severe physical morbidity were excluded.

The data was collected on a predesigned, structured proforma which was translated into local language. For assessment of depression Geriatric Depression Scale-15 (GDS-15) questionnaire was administered for scoring after

explaining the purpose of study. As per the scale scores were given and assessment done, based on positive and negative correct answers. The GDS-15 score of >5 is suggestive of depression (Score: 0-4: normal, 5-8: mild, 9-11: moderate, 12-15: severe). After identifying and categorizing, the subjects with mild depression were referred for counselling while moderate to severe ones were referred for expert care.

The data about socio-demographic correlates was collected. Some of the factors like marital status, family type, living arrangement, and education and occupation status have been published in a separate article [12]. Further data analysis was done as per their occupation status, pension status, economic dependency etc. As the number of severe and moderate degree cases was less, they were clubbed together for further analysis. Statistical analysis of the data collected was carried out by using SPSS-20 software with appropriate statistical tests. The Geriatric depression scale is found to be 92% sensitivity and

89% specificity when evaluated against diagnostic criteria. The validity and reliability of the tool has been supported through both clinical practice and research [13].

**Results:**

Socio-demographic profile of the subjects studied was analysed, and proportion of depressed elderly and the degree of depression was assessed as per the age group. Almost half of the study participants (50.5%) were in the age group of 60-65 yrs. The study sample comprised of 56.3 % of females. Most common religion was Hindu (91.3%). The percentage of study participants who were married was 76.7 % and most of them (81.6%) were economically dependent. Very few (19.4%) were getting pension. Only 5.8% of the study participants were living alone and rest all were living either with their spouse or children. Most of the study participants were from upper lower (34%) and upper middle (32%) class family. Majority of elderly i.e. 62.1% of them were not working (Table 1).

**Table 1: Socio-demographic Profile of Elderly**

Sr.No.	Socio-demographic character	Frequency	Percentage	
1	Age	60-65	52	50.5
		66-70	19	18.4
		71-75	19	18.4
		76-80	13	12.6
2	Sex	Male	45	43.7
		Female	58	56.3
3	Religion	Hindu	94	91.3
		Muslim	5	4.9
		Buddha	4	3.9

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Sr.No.	Socio-demographic character	Frequency	Percentage	
4	<b>Educational status</b>	Illiterate	31	30.1
		Primary to higher secondary school	53	51.5
		Graduate & Above	19	18.4
5	<b>Marital Status</b>	Married	79	76.7
		Widowed, Divorced & Separated	24	23.3
6	<b>Economic dependency</b>	Dependent	84	81.6
		Independent	19	18.4
7	<b>Pension</b>	Receiving pension	20	19.4
		No pension	83	80.6
8	<b>Living arrangement</b>	Alone	6	5.8
		With spouse only	13	12.6
		With spouse & children	66	64.1
		With children only	18	17.5
9	<b>Family Type</b>	Nuclear	42	40.8
		Joint	38	36.9
		Extended	23	22.3
10	<b>Socioeconomic status</b>	Lower	5	4.9
		Upper Lower	35	34
		Lower Middle	18	17.5
		Upper Middle	33	32
		Upper	12	11.7
11	<b>Occupational status</b>	Working	39	37.9
		Not working	64	62.1

**Table 2: Sex Wise Degree of Depression**

Sex	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
Male	26 (57.8)	13(28.9)	6(13.3)	45(100%)
Female	24(41.4)	20(34.5)	14(24.1)	58(100%)
Total	50(48.5)	33(32)	20(19.4)	103(100%)

$$\chi^2 = 3.175 \quad P=0.204$$

Females were more likely to be depressed (mild depression 34.5% and moderate to severe depression 24.1%) as compared to male study participants.(Table-2)

**Table 3: Depression and Working Status**

Occupational status	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
Working	16(41.0)	14(35.9)	9(23.1)	39(100%)
Non-working	34(53.1)	19(29.7)	11(17.2)	64(100%)
Total	50(48.5)	33(32.0)	20(19.4)	103(100%)

$$\chi^2=1.455 \quad P=0.483$$

More percentage of working (35.9%, 23.1% mild and moderate to severe depression respectively) study participants were depressed as compared to non-working study participants (Table-3).

**Table 4: Depression and Pension Status of Elderly**

Pension	Normal (%)	Depressed (%)	Total (%)
With pension	15(75)	5(25)	20(100%)
Without pension	35(42.2)	48(57.8)	83(100%)
Total	50(48.5)	53(51.5)	103(100%)

$$\chi^2 = 5.702 \quad P= 0.0169$$

There was a significantly higher rate of depression among those who did not received pension as compared to those who got pension. Classification of depression into mild and moderate form in relation to getting pension was as follows-

**Table 5: Depression level and Pension Status of Elderly**

Pension	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
With pension	15(75)	1(5)	4(20)	39(100%)
Without pension	35(42.2)	32(38.6)	16(19.3)	64(100%)
Total	50(48.5)	33(32.0)	20(19.4)	103(100%)

$$\chi^2 = 9.246 \text{ P} = 0.10$$

Mild depression was very high (38.6%) among the study participants who were not getting any pension as compared to those who were getting it (5%). However in case of moderate to severe

depression there was very slight difference among study participants who were getting pension and those who were not getting pension. (Table-5)

**Table 6: Depression and Socio-economic Status**

Socioeconomic status	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
Lower	0(0.0)	3(60.0)	2(40.0)	5(100%)
Upper lower	17(48.6)	11(31.4)	7(20.0)	35(100%)
Lower Middle	7(38.9)	7(38.9)	4(22.2)	18(100%)
Upper Middle	18(54.5)	10(30.3)	5(15.2)	33(100%)
Upper	8(66.7)	2(16.7)	2(16.7)	12(100%)
Total	50(48.5)	33(32.0)	20(19.4)	103(100%)

$$\chi^2 = 7.759 \text{ P} = 0.457$$

Both the types of depression, mild (60%) and moderate to severe (40%) were common in study participants who were from lower socioeconomic

group. Extent of depression went on decreasing with increase in socioeconomic status (Table-6).

**Table 7: Depression and Economic Dependency**

<b>Economic dependency</b>	<b>Normal (%)</b>	<b>Mild (%)</b>	<b>Moderate to Severe (%)</b>	<b>Total (%)</b>
<b>Dependent</b>	40(47.6)	27(32.1)	17(20.2)	84(100%)
<b>Independent</b>	10(52.6)	6(31.60)	3(15.8)	19(100%)
<b>Total</b>	50(48.5)	33(32.0)	20(19.4)	103(100%)

$$\chi^2 = 5.603 \quad P=0.061$$

Moderate to severe depression was more common in economically dependent (20%) study participants as compared to those who were independent (Table-7). Although the difference did not reach the level of significance, the p-value was very close and approaching the level of significance.

**Discussion:**

WHO has highlighted the issue of geriatric health over the years, with various World Health Day themes dedicating to the health of the elderly [14].

The sample size in the present study may be adequate to determine the prevalence of depression among the elderly, but it was not adequate to study the associated factors.

52.4% elderly studied were found to be depressed in the present study while the figure was more than 60% in similar studies conducted in India using GDS [15, 16].

The findings of the present study were in accordance with another study i.e. 33 reported that among 165 elderly studied, 35 (21.2%) suffered from depression, with possibility of depression in another 52 (31.5%) and 78 (47.3%) were normal [17]. Similarly in a hospital based study it was

found that nearly 52.5 percent of patients with chronic medical illness suffer from psychiatric illness of which depression is the commonest [18].

Male dominant traditional societies in which control of sources of finances is exclusively with males along with low educational level in females may contribute to more economical dependence. Elderly females seem to be more prone to depression (Table 2) in other studies also it was seen that more female elderly were depressed as compared to males [19, 20]. Some researchers have observed that 27% were normal, 7% were border line and 66% were depressed. Depression was found to be more in females 75% [21].

The educational and occupational status of elderly are important factors associated with depression in old age, in our study severe depression was common in illiterate subjects from lower socioeconomic status and more working elderly were having mild to moderate depression (Table 3,4 & 5). Multiple logistic analyses revealed in a study that the significant independent predictors of depression were higher age, low education and financial dependence, unemployment and illiteracy were also seen to be associated factors in other studies [15, 16].

Economically dependent elderly had more chances of depression as compared to the independent ones. If the sample size was sufficiently big, it might have reached the level of significance (Table 7). A study at Bengaluru for prevalence of depression, it was significantly more i.e. 70% in medium standard of living index group as compared to 28.9% from high standard living index group, Other research workers also have shown that depression is associated with poor socioeconomic status [22-25].

In the present study mild depression is present in 38.6% of elderly in those elderly who had no pension (Table 5). As per our study elderly from low socioeconomic status are prone for getting depression as all reported having either mild or moderate to severe form of depression, further it has been observed that the pension is found to be associated with increased expenditure on medical care and education of family members [2].

Economic dependency seems to be an important reason for depression apart from social, cultural and organic causes. In a cross sectional study in Andhra Pradesh as per GDS scale, out of 532 elderly interviewed, 131 (24.62%) were totally dependent and 130 (24.43%) were partially dependent on family members. Out of 261 who were economically dependent 68% were depressed [26].

A hospital based cross sectional study undertaken on 306 patients from geriatric OPD in Kolkata, prevalence of depression and associated factors were studied. It was found that 65.3% had depression and economic dependency was

important factor identified as a significant factor statistically associated [27]. Many others have studied economic dependency in elderly which seems to range from 28.3% to 66 % in different studies [28-32]. Some researchers in their study on morbidity among elderly persons residing in a resettlement colony of Delhi found that out of 233 elderly studied, 145 (62%) elderly were economically dependent, 48 (21%) were independent and 40 (17%) were partially dependent [33]. Epidemiologists in their study on health of the urban elderly Ludhiana, Punjab and reported that among 165 elderly studied, 125 (75.8%) were financially dependent, 40 (24.24%) were having their own income [17]. A study carried study on the psycho-social profile of the elderly people in urban area of Meerut city reported that dependency was more in females 77.5% as compared to males 21.8% [34]. The relatively faster increase in the elderly population will contribute to a higher dependency ratio of the population in the non-productive age group. Implementation of various strategies under National Policy on Older Persons (NPOP) in the form of modern social security system and adequate health care services is warranted to ensure that elderly are not ignored and marginalized [35, 36].

### **Conclusions:**

Depression in elderly often goes undetected and is considered to be normal part of aging process and is taken as part of stereotyping as elderly are considered as less energetic, less valuable to potential employer and for the family making



them economically dependent, this attitude can lead to discrimination, and can become important factor for depression.

As per results obtained in the present study, the prevalence of depression in elderly is quite high and elderly can be considered as vulnerable population at special risk of depression.

The Geriatric Depression Scale (GDS) can be taken as a tool which is simple, easy to use, without any intervention, and can be used by even paramedical interviewer for early detection of depression in elderly. Among the factors associated with depression like socio-economic status, pension status and economic dependence on others are important factors associated with depression in elderly.

Considering the rise in elderly population in near future, early identification of elderly having probable depression and taking prompt action in the form of Senior citizen pension/elderly allowance or easy insurance schemes is important. Existing provisions considered by the government should be effectively implemented to make them financially secure and independent which will go a long way in addressing the problem of economic dependency leading to depression in elderly.

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#### **References**

1. WHO, Primary Health care: Indian scenario, Geneva; WHO Journal 2008.
2. Neeraj Kaushal, How Public Pension affects elderly labour supply and wellbeing: evidence from India NBER working paper series-19088, National Bureau of Economic Research, May 2013.
3. Pal Sarmistha and Robert Palacios. Understanding poverty among the elderly in India: Implications for social pension policy. *Journal of Development Studies* 2011;47(7): 1017-1037
4. Zile Singh. Aging: The Triumph of Humanity- is we prepared to face the challenge? *Indian Journal of Public Health* 2012; 56(3):189-195.
5. RabindraNath Sinha: Make dementia a public health priority in India, *Indian Journal of Public Health* 2011; 55(2): 67-69.
6. Rangaswamy SM. Geneva, Switzerland: The World Health Organization; 2001. World Health Report: Mental Health: New understanding New Hope.
7. Wig NN. World Health Day, 2001. *Indian J Psychiatry* 2001; 43:1-4.
8. Murray C J and Lopez AD. Alternate projections of mortality and disability by cause 1990-2020, Global burden of disease study. *Lancet* 1997;349: 1498-504
9. <http://www.economist.com/node/13611235>. The Economist. Accessed on 10-8-15
10. Socio-economic profile of elderly population in –Situational Analysis of The Elderly in India, June 2011, Central Statistics Office, Ministry of statistics and Programme Implementation, Government of India
11. Ravi Kumar, Shankar Reddy Dudala. Kupuswami' Socioeconomic status Scale a revision of economic parameter for 2012, *International Journal of Research and Development of Health* 2013; 1(1):2-4
12. Vandana A Kakrani, Atul V Desale, Charchit P Mehta. Geriatric Depression Scale (GDS): A tool for assessment of depression in elderly. *JKIMSU* 2015; 4(3): 24-31.
13. Greg SA. The Geriatric Depression Scale (GDS) 2012;4 [http://consult.gerim.org/uploads/file/try\\_this-4.pdf](http://consult.gerim.org/uploads/file/try_this-4.pdf)
14. WHO Active aging: A policy framework Non communicable Disease Prevention and health Promotion, Aging and life course, Geneva, Switzerland WHO 2002.
15. Hussain Akhtar, Amir Maroof Khan, K Vikram, Vaidhyathan, Pragati Chhabra, A T Kannar. Socio-demographic predictors of depression among the

- elderly patients attending outpatient departments of a tertiary hospital in North India. *International journal of Preventive Medicine* 2013; 4 (8): 971-975.
16. Sreejith S Nair, Hiremath SG, Ramesh, Pooja. Depression among Geriatrics: Prevalence and associated factors. *Int J Curr Res Rev* 2013; 5(8): 110-112.
  17. Sengupta P, Shurti Singh, Benjamin A I. Health of the Urban Elderly in Ludhiana, Punjab. *Indian Journal of Gerontology* 2007; 21(4): 368-377.
  18. Abhay et al. Psychiatric disorders in medical inpatients. *Indian Journal of Psychiatry* 2008; 40: 73-8.
  19. Pennice BWJH, Geerlings S W, Dieg DJH, Vanetadet. Minor and major depression and risk of death in older persons. *Arch Gen Psychiat* 1999; 56: 889-895.
  20. Jariwala Vishal, Bansal RK, Patel Swati, Tamakuwala Bimal. A study of depression among aged in Surat City. *National Journal of Com Med* 2010(1): 47-49.
  21. Thilakavathi Subramanian, Uenkatarao T, Ramakrishnan R, Suresh Kumar SK, Gupte MD. A Study on Psycho-social Aspects of Geriatric People in a Rural Area. *Indian Journal of Preventive and Social Medicine* 1999; 30(2): 66-73.
  22. Sanjay TV, R Jahnvi, B Gangaboraish, P Lakshmi, S Jayanti. Prevalence and factors influencing depression among elderly living in the urban poor locality of Bengaluru city. *International Journal of Health and Allied Sciences* 2014; 3(2): 105-109.
  23. Vishal J, Bansal R K, Swati P, Bimal T. A study of depression among aged in Surat City. *National Journal of Community Medicine* 2010; 1: 47-9.
  24. Arumugam B, Nagalingam S, Nivetha R. Geriatric depression among rural and urban slum community in Chennai: a cross sectional study. *J Evol Med Dent Sci* 2013; 3: 795-801.
  25. Pracheth R, Mayur SS, Chowri JV. Geriatric Depression; A tool to assess depression in elderly. *Int J Med Sci Public Health* 2013; 3: 31-5.
  26. Uday SE, JDP, Konduru RK, Patil SD. A study of Economic Dependency and its Relation to Depression among Elderly People in Rural Area of Chittitoor District, Andhra Pradesh. *IJHSR* 2014; 4(12): 100-105
  27. Siddharta Sankar Saha, Pradeep Kumar Saha. An epidemiological study on depression and related factors among Geriatrics in a tertiary care hospital. *IOSR Journal of Dental and Medical Sciences* 2013; 12 (6): 14-17.
  28. Parvan UC, Ahluwalia SK, Gupta BP, Swami HM, Vaidya NK. Elderly at their homes -a social study. *Indian Journal of Preventive and Social Medicine* 1983; 14(1-2): 53
  29. Padda A S, Mohan V, Jagjit Singh, Deepti SS, Gurmeet Singh, Dhillon HS. Health Profile of Aged Persons in Urban Field Practice Areas of Medical College, Amritsar. *Ind J of Comm Med* 1988; XXIII (2): 72-76.
  30. Elango S. A Study of Health and Health Related Social Problems in the Geriatric Population in a Rural Area of TamilNadu. *Indian Journal of Public Health* 1998; XXXXII (1): 7-8.
  31. Goel PK, Garg SK, Singh JV, Bhatnagar M, Chopra H, Bajpai SK. Unmet Needs of the Elderly in a Rural Population of Meerut. *Indian Journal of Community Medicine* 2003; XXVIII (4): 165-166.
  32. Purty Anil Jacob, Joy Bazroy, Kar Malini, Vasudevan Kavita, Veliath Anita, Panda Purushottam. Morbidity Pattern among the Elderly Population in the Rural Area of Tamil Nadu, India. *Turk J Med Sci* 2006; 36: 45-50
  33. Shashikant, Mishra Puneet, Goswami Anil, morbidity among elderly persons residing in a resettlement colony of Delhi, India. *J Prev and Soc Med* 2004; 35(1): 1-9.
  34. N. Singh, Chopra H, Singh JV, Bhatnagar M, Garg SK, Bajpai SK. The psychosocial profile of elderly people in urban area of Meerut city. *Journal of Indian Academy of Geriatrics* 2009; 5(4): 165-170
  35. Kshipra Jain and Mayank Prakash. Is Economic Security of Elderly A concern for India: A systematic Review of Indian Plans and Policies. *Indian journal of Gerontology* 2014, 28(2): 244-259.
  36. Yuvaraj Saharan. Aging Population and Economic Growth: Understanding Problems in Indian health care and it a Policy Implications. *Indian Journal of Gerontology* 2014; 28 (2): 260-272.

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