

## ORIGINAL ARTICLE

**Geriatric Depression Scale (GDS): A Tool for Assessment of Depression in Elderly**Vandana A. Kakrani<sup>1</sup>, Atul V. Desale<sup>1\*</sup>, Charchit P. Mehta<sup>1</sup><sup>1</sup>Department of Community Medicine, Dr. D. Y. Patil Medical College, Pimpri, Pune-411018  
(Maharashtra) India**Abstract:**

**Background:** India is in the process of rapid demographic progression of increased life expectancy and aging with geriatric population of 7.2 percent which is estimated to rise to 20 percent in 2050. With increasing geriatric population elderly with dementia and associated depressive illness are expected to rise in number to almost an epidemic. Among the morbidity encountered in elderly, depressive disorders are common. **Aim & Objectives:** The present study was conducted with the objective to assess the extent and degree of depression in elderly, and study some correlates associated with depression in them. **Material & Methods:** The study was carried out at geriatric clinic of Dr. D. Y. Patil Medical College, Pune under the guidance of department of community medicine. **Methodology:** The randomly selected elderly above the age of 60 years attending the clinic and willing to participate in study were administered the questionnaire of Geriatric Depression Scale (GDS), scores were given, based on which the subjects were categorized as mild, moderate and severe. Those with score >5 were considered as suggestive of depression and some factors studied were analysed to find out their association with depression. **Results:** It was revealed that the proportion of elderly having depression was 52.4% with 84.6% of depressed in age group of 76-80 years. Moderate to severe type was more commonly seen in illiterate; however some degree of depression was present in all elderly irrespective of literacy status. Moderate to severe type was seen more commonly in elderly living in nuclear families (23.8%), and living alone (33.3%). Thus more than half of elderly studied were having depression, and it was observed that as the age advanced the degree of depression significantly increased. Some of the factors studied like low

education status, poor economic status, nuclear family status, single status, loneliness, were associated with depression. The GDS Scale can be considered as a tool for early detection and prompt action. **Conclusion:** The prevalence of depression in elderly is a matter of concern. The GDS can be used as a simple, easy to use, non-intervention based tool for early detection and prompt action. Tackling the health related issues like depression along with social and income security will go a long way in adding life to their years instead of years to life of elderly.

**Keywords:** Elderly Depression, GDS, Screening Tool for Depression

**Introduction:**

Population aging is one of the greatest triumphs of humanity, but is the greatest challenge as well. The biggest achievement of the last century was greater longevity that has resulted in increasing geriatric population worldwide. By 2025 the elderly population globally is expected to rise more than 1.2 billion with 840 millions in the developing countries [1].

India is in the process of rapid demographic aging. The country has witnessed an improvement in life expectancy at all ages and along with decrease in fertility rates, it has resulted in increasing elderly population. India, the second most populous country in the world is home for more than 76 million people aged 60 years and above i.e. the geriatric population is 7.2% of the total population. By 2030, the geriatric population will be 195 million which is estimated to rise to 308 million by 2050 constituting about 20% of the total population [2].

In India, currently at least 3.7 million elderly people are living with dementia which is associated with depressive illness, and the country is on the brink of a virtual dementia epidemic; the number is expected to increase two-fold by 2030 and three-fold by 2050 due to increasing number of depressive illness in the elderly age group. In India, the annual cost of taking care of a person with depression associated dementia has been estimated to be INR 43,285; which is met as an extra burden on the families [3].

The World Health Organization (WHO) has estimated that the overall prevalence rate of depressive disorders among the elderly generally varies between 10 and 20%, depending on the cultural situations [4, 5]. 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% [6, 7]. Depression is not a natural part of aging. There is presumptive evidence that ecological, cultural and social factors have considerable influence on the incidence and clinical manifestations of depression.

Ischemic heart diseases are major causes of death in elderly. The various lifestyle related risk factors are associated with it in elderly as well. Depression is also an independent risk factor for the onset of cardiovascular disease [8].

Additionally mental illness is associated with increase in frequency of risk factors such as obesity, hypertension, poor diet, physical inactivity, hazardous drinking and tobacco use which are considered as the diseases of tomorrow [9, 10].

A study was undertaken to assess the extent and degree of depression in elderly by using a screening tool, find out some correlates associated with it and refer those with depression for in depth psychological assessment.

### **Material and Methods:**

The study was conducted at the geriatric clinic of Dr. D.Y. Patil Medical College under the guidance of Department of Community Medicine. The patients attending the clinic were randomly selected and the information about their identification, their educational status, economic dependence, family type etc. was collected.

After explaining the purpose of the study they were administered the questionnaire and the scores were given. Informed consent was obtained from patients before the information was collected. Permission from head of institute was taken and ethical clearance was obtained from Institutional Ethics Committee of the college before starting the study.

The study was designed as hospital based patient population study. Individuals above 60 years of age and both sexes who were visiting geriatric clinic OPD of Dr. D. Y. Patil Medical College, Pune. The study was undertaken from 1<sup>st</sup> July 2014 to 31<sup>st</sup> August 2014 in the period of 2 months.

Sample size calculation was considered by taking the prevalence of 25%, the sample for study was considered to be around 75 [sample size was considered as 100]

Elderly above 60 years who were interested to participate in the study were included. Those who were not willing to participate, patients with severe mental deterioration, severe cognitive impairment, deafness or severe physical morbidity were excluded.

### **Data Collection Procedure:**

Information was collected on predesigned, structured proforma. Information collection was done by using the questionnaire translated in local language.

Based on the positive and negative correct answers, scores were given and assessment was made about the extent of depression. The GDS-15 score of >5

is suggestive of depression. (Score: 0-4-normal, 5-8 mild, 9-11 moderate, 12-15 severe) [11]. So, with the help of this assessment tool the patients having suggestion of depression were identified, referred and counselled whenever needed.

Socio demographic profile of the subjects studied was analyzed, and proportion of depressed elderly and the degree of depression was assessed as per the age group. For further analysis of correlates associated with depression, moderate and severely depressed groups were clubbed together as the number was less.

The data was analyzed as per the type of family, marital status, educational status, etc. After categorizing, mild depression cases were referred for counseling while moderate to severe ones were referred to specialists for expert care.

**Statistical Analysis:**

Data collected was analyzed using SPSS-20 software with appropriate statistical tests.

The Geriatric depression scale is found to have 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 [11].

**Results:**

Majority of the study participants (50.5%) were in the age group of 60-65 years. 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

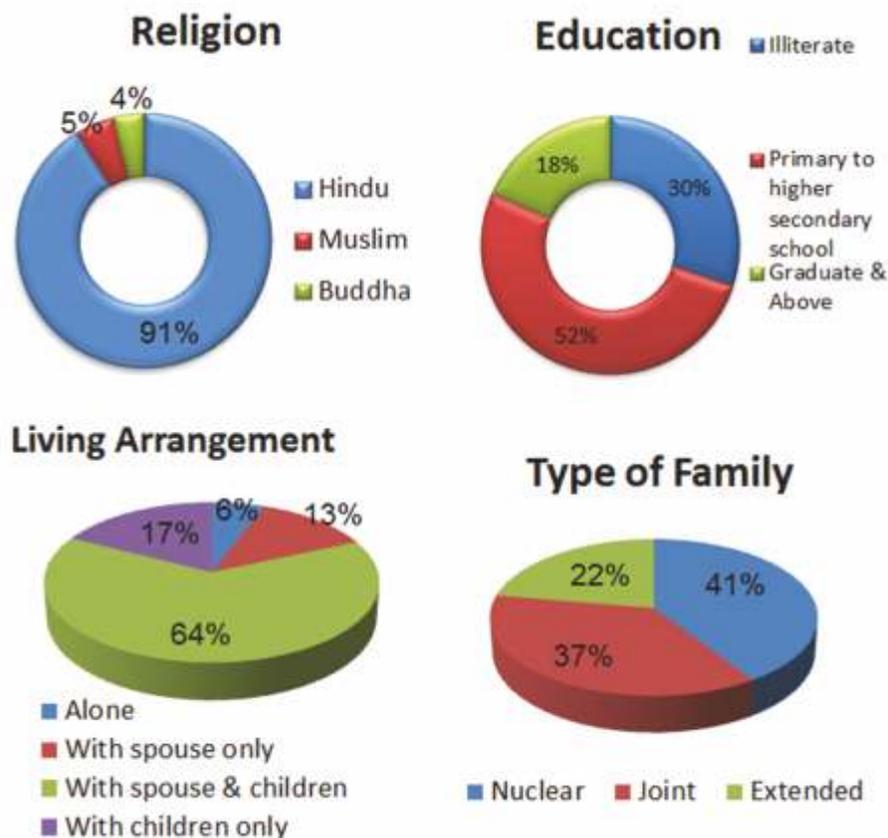


Fig. 1: Socio-demographic Profile of the Elderly

pension. Only 5.8% of the study participants were living alone and rest all were living either with their spouse or children as shown in Fig. 1. 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.

The association of the socio demographic factors was studied with depression. Though the trend was evident with all the factors, level of statistical significance could not be seen except between the age group and degree of depression which was statistically significant as seen in the following tables.

Among the 103 elderly studied 54 (52.4%) were found to be having depression as per the score by GDS scale. It was observed that out of 13 elderly study participants in 76 to 80 years of age,

11(84.6%) were depressed. The rate of depression increased with increasing age. (Table1)

Moderate to severe depression was most common in the age group of 71-75 years old subjects and the difference was statistically significant (Table 2).

Moderate to severe depression was more commonly observed in illiterate participants i. e. 25.8% as compared to literate. However some degree of depression i.e. mild degree was seen in all elderly irrespective of literacy status (26.3% to 35.5%) as seen in Table 3. The differences however were not statistically significant.

Moderate to severe depression was observed to be more in the elderly who were from nuclear families and mild depression in those who were from extended families in Table 4. These differences however were not statistically significant.

**Table 1: Age Group and Depression**

Age	Depressed (%)	Non-Depressed (%)	Total (%)
60-65	23(44.2)	29(55.8)	52 (100%)
66-70	10(52.6)	9(47.4)	19(100%)
71-75	10(52.6)	9(47.4)	19(100%)
76-80	11(84.6)	2(15.4)	13(100%)
<b>Total</b>	54(52.4)	49(47.6)	103(100%)

$$\chi^2 = 6.802, P=0.078$$

**Table 2: Age Group and Degree of Depression**

Age	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
60-65	29 (55.8)	14(26.9)	9(17.3)	52(100%)
66-70	9(47.4)	7(36.8)	3(15.8)	19(100%)
71-75	10(52.6)	3(15.8)	6(31.6)	19(100%)
76-80	2(15.4)	9(69.2)	2(15.4)	13(100%)
<b>Total</b>	50(48.5)	33(32.0)	20(19.4)	103(100%)

$$\chi^2 = 13.119, P = 0.041$$

It was observed that most of the study participants who were widowed, divorced & separated were suffering from mild depression (50%) whereas almost equal percentage in both categories (married 19% and widowed, divorced & separated 20.8%) were suffering from moderate to severe depression in Table 5.

Most of the study participants (50%) living with their children were suffering from mild depression. Moderate to severe depression was more common

(33.3%) in study participants who were living alone in Table 6. There was no association between marital status, living arrangement and proportion of persons with depression.

#### Discussion:

The demographic transition in India is predicted to transform the current population “pyramid” into a “pillar” by the year 2050, this geriatric boom needs a greater demand on already overstretched burden on health budget and has been identified as one of

**Table 3: Depression and Educational Status**

Educational status	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
Illiterate	12(38.7)	11(35.5)	8(25.8)	31(100%)
Primary and secondary School	28(52.8)	17(32.1)	8(15.1)	53(100%)
Graduation and above	10(52.6)	5(26.3)	4(21.1)	19(100%)
Total	50(48.5)	33(32.0)	20(19.4)	103(100%)

$$\chi^2 = 2.381, P=0.666$$

**Table 4: Depression and Type of Family**

Type of family	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
Nuclear	20(47.6)	12(28.6)	10(23.8)	42(100%)
Joint	21(55.3)	9(23.7)	8(21.1)	38(100%)
Extended	9(39.1)	12(52.2)	2(8.7)	23(100%)
Total	50(48.5)	33(32.0)	20(19.4)	103(100%)

$$\chi^2 = 6.508, P=0.164$$

**Table 5: Depression and Marital Status**

Marital Status	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
Married	43(54.4)	21(26.6)	15(19.0)	79(100%)
Widowed, Divorced and Separated	7(29.2)	12(50.0)	5(20.8)	24(100%)
Total	50(48.5)	33(32.0)	20(19.4)	103(100%)

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

**Table 6: Depression and Living Arrangement**

Living arrangement	Normal (%)	Mild (%)	Moderate to Severe (%)	Total (%)
Alone	2(33.3)	2(33.3)	2(33.30)	6(100%)
With Spouse Only	6(46.2)	3(23.1)	4(30.8)	13(100%)
With Spouse and Children	37(56.)	19(28.8)	10(15.2)	66(100%)
With children Only	5(27.8)	9(50.0)	4(22.2)	18(100%)
<b>Total</b>	50(48.5)	33(32.0)	20(19.4)	103(100%)

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

the top challenges under primary health care [1]. WHO has highlighted the issue of geriatric health over the years, with World Health Day themes as Add life to years (1982), and Healthy living: Everyone a winner (1986), then Active aging-makes the difference (1999) [12]. Depression is often reversible with prompt recognition and appropriate treatment. However, if left untreated, it may result in the onset of physical, cognitive, functional, and social impairment, as well as decreased quality of life, delayed recovery from medical illness and surgery, increased health care utilization, and suicide.

In the present study among the elderly studied 54 i.e. 52.4% were depressed. A high proportion of moderate to severe type of depression is seen in the age group of 71-75 years and more (Table 1 and 2). Using the GDS scale in another study among 678 elderly studied 61.4 % scored positive for depression [13]. With increasing age a feeling of isolation from society and hopelessness are important agonizing problems of old age due to which elderly are prone to depression. In other studies [13, 14] there is no relationship between age and prevalence of depression but in our study there is significant association between age and depression as almost 84% among the elderly are in age group of 76-80 years and more are significantly associated with severity of depression (Table 1 and 2).

In one study it was revealed that out of 60 elderly

respondents, 16(26.67%) were normal, 23(38.33%) were in moderate depression and 21(35.00%) were in severe depression [15]. Others observed that 27% were normal, 7% were border line and 66% were depressed. Depression was found to be more in females 75% [16].

Some researchers revealed that out of 32(27.6%) persons diagnosed with depression, 24 were of mild severity and rests 8 were of moderate severity. Depression tends to be diminishing with advancing age [17].

A meta-analysis found the depression in elderly to be more in India 18.2 % which was significantly higher than the rest of the world. Less competitive lifestyles improved mental health facilities with integration with primary health care could be responsible for lesser prevalence rates in some developed Asian countries [18].

Thus different workers have reported varying prevalence of depression in elderly, which may be due to difference in methodology and scales used.

The education of elderly is important factor associated with depression in old age, in our study severe depression was common in illiterate subjects as they were observed to be having mild to moderate depression (Table 3). Multiple logistic analysis revealed in a study that the significant independent predictors of depression were higher age, low education and financial dependence, unemployment and illiteracy and were seen to be associated these factors [13, 14,

17]. Illiteracy leads to unproductive life and greater difficulty in getting jobs making them dependent on the other family members.

Support of the family in the older age is important, elderly living with their children and grandchildren feel more comfortable. In our study elderly from nuclear families seem to be having moderate to severe depression (Table 4). Some studies found that 32 (53.33%) were living in nuclear family, 22(36.67%) were living in joint family, 6 (10.00%) were living in extended family. Similarly in another study, it was revealed that out of 698 elderly studied 73.74% elderly were living in joint families [15, 19].

Depression in the late life occurs in the context of numerous social, developmental and biological diversities which include the instances like death of spouse, retirement etc. In our study it was seen that most of elderly who were widowed, divorced and separated were suffering from depression (Table 5). Death of the spouse renders them vulnerable to mental stress; widowhood has been strongly associated with depression in several studies [20, 21].

In a study at Surat 74.4 % more unmarried elderly were having depression as compared to 18.2% married elderly and difference was significant statistically in two groups [22].

Majority of elderly are usually living with family members, it shows that there exist strong family support system in rural areas but in urban areas it may not be true. Elderly living with spouse and children get more emotional support than elderly living alone. Living alone can be taken as a surrogate measure of loneliness which may be due to the fact that the traditional care takers like sons/daughters and daughter in laws working outside home leaving them alone at home most of the time in the day.

Some researchers observed that their living arrangement was such that, out of 600 elderly, 205 (68.33%) elderly couples were there, 120 (20%) elderly were staying with their children, whereas

31 (5.27%) with relatives and 39 (6.5%) were staying alone. Other researchers found that 9(2.49%) person were living with their distant relatives, 13 (3.60%) were living alone, 35 (9.69%) were living with their spouse, 175 (48.47%) couples were living with their family. Loneliness in the lives of elderly can be major risk factor for occurrence of depression, due to loss of loved ones like wife, child or close friends; these findings were seen in a study with overall prevalence of depression 58.5% [23, 24].

The depression in elderly often goes undetected and is considered to be normal part of aging process and a natural reaction to chronic illness. It is taken as stereotyping as elderly are considered as less energetic, less valuable to potential employer; this attitude by family members can lead to discrimination and itself can become important factor for depression. GDS can be taken as a tool which is simple, easy to use, without any intervention. GDS-15 is designed specifically to screen depression among elderly. It can be used as a valid public health instrument, which can be utilized as a tool to assess elderly about presence of depression for further referral to specialists.

#### **Conclusion and Recommendations:**

The prevalence of depression in elderly is found to be quite high, and it increases as the age advances, therefore elderly can be considered as vulnerable population for depression. The GDS can be taken as a simple, easy to use screening tool for its detection and prompt action. This scale can be incorporated in the Comprehensive Health Card to be used for the regular monitoring of their health. Counseling sessions should be made available in the Geriatric Clinic, involving family members so that elderly can be considered as asset rather than liability.

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