

# GERIATRIC DEPRESSION SCALE: A TOOL TO ASSESS DEPRESSION IN ELDERLY

Pracheth R, Mayur SS, Chowti JV

Department of Community Medicine, SDM College of Medical Sciences and Hospital, Sattur, Dharwad, Karnataka

Correspondence to: Mayur SS (drmayurss@yahoo.co.in)

DOI: 10.5455/ijmsph.2013.2.31-35

Received Date: 27.09.2012

Accepted Date: 29.09.2012

## ABSTRACT

**Background:** Aging is a progressive stage beginning with conception and ending with death. Growth in the elderly population has led to an increase in age related diseases and mainly depression affecting quality of life. Depression in old age is an emerging public health problem leading to morbidity and disability worldwide.

**Aims & Objective:** To assess the prevalence of depression in elderly using the Geriatric Depression Scale (GDS), to determine the factors influencing depression and recommend preventive measures.

**Material and Methods:** A Community Based Cross Sectional Study was conducted in the urban slums, field practice area of Community Medicine attached to a tertiary care hospital. Study was done for six months in the urban slums and persons aged  $\geq 60$  years residing in the urban slums were included. Those with any psychiatric morbidity and without consent were excluded. A pre-designed, pre-tested proforma was used to collect information. GDS was used to assess depression

**Results:** Prevalence of depression was 29.36%. Females (31.39%) were more affected than males (25.93%). 41 (64.06%) among those who were not working were depressed. 45 (70.31%) among illiterates were depressed compared to 19 (29.69%) literates ( $X^2=6.664$ ,  $df=1$ ,  $p=0.0098$ , NS). (64.06%) among those not working, (60.93%) elderly belonging to low socioeconomic status and (54.69%) indulging in substance abuse had depression.

**Conclusion:** Depression in elderly is highly prevalent. Quality health care of the elderly reduces the future burden of diseases and disabilities.

**KEY-WORDS:** Depression; Elderly; Geriatric; Literacy; Substance Abuse

## Introduction

Aging is a series of process that begin with life and continue throughout the life cycle, ending with death.<sup>[1]</sup> Population aging has become a universal phenomenon<sup>[2]</sup> and is the result of a process known as “demographic transition” in which there is a shift from high mortality and fertility to low, leading to an increase in the proportion of elderly people in the total population. India, the second largest country in the world, is presently undergoing such a demographic transition<sup>[3]</sup> with 72 million elderly persons above 60 years of age, which is expected to increase to 179 million in 2031 and further to 301 million in 2051. This increase in the number of elderly will have a direct impact on the demand for health care services and social security.<sup>[4]</sup> Moreover the elderly who are economically unproductive are being neglected.<sup>[5]</sup> As a result of this the elderly are becoming more prone to mental disorders, of

which depression is predominant. Depression being difficult to diagnose, will lead to an increase in morbidity, mortality and health care costs along with a reduction in quality of life.<sup>[6]</sup> This may lead to a silent epidemic and could become the second-leading cause of disease burden after ischemic heart disease in the year 2020.<sup>[7]</sup> Elderly patients with depression are more prone for cardiovascular, lung diseases and are less likely to adhere to their diet, exercise and medications as compared to elderly patients without depression.<sup>[8]</sup> Therefore early diagnosis and treatment remains the mainstay to reduce the burden of this disease. Community based studies done on depression among elderly in India are very few, thus this study was an attempt to assess the prevalence of depression among elderly using the Geriatric Depression Scale (GDS) and to determine the factors influencing depression and to recommend preventive measures.

## Materials and Methods

A Community Based Cross Sectional Study was conducted in the urban slums, field practice of Community Medicine attached to a tertiary care hospital of Dharwad district, Karnataka, India. The study was carried out for a period of six months from November 2011 to May 2012.

**Inclusion and Exclusion Criteria:** All persons aged  $\geq 60$  years willing to participate on a voluntary basis and without any psychiatric morbidity were included. Those with any psychiatric morbidity and without consent were excluded.

The sample size was estimated using the formula  $n = 4pq/L^2$ . The prevalence of depression, "p" among elderly persons was taken as 31.4%.<sup>[5]</sup> "L", which is the permissible error in the estimate of p was set at 20%. Using the above mentioned statistical formula which considers 95% confidence limits, the sample size was estimated to be 218.

A house to house survey was conducted and a systematic random sampling procedure was applied to achieve the required sample size. After obtaining written informed consent from all the elderly study participants, the data was collected by using a pre-designed and pre-tested proforma along with GDS which was modified and translated to the local language. This scale was created and validated by Yesavage JA<sup>[9]</sup> to assess depression. It screens for seven characteristics of depression in elderly, which are somatic concerns, lower affect, cognitive impairment, feelings of discrimination, impaired motivation, lack of future orientation and lack of self-esteem. GDS consists of 30 questions with a maximum score of 30. Those who scored 10 and more were considered as depressed. Information regarding marital status, education status, occupation, socio-economic status (SES, Modified B.G Prasad Classification 2011)<sup>[10]</sup>, substance abuse, presence of chronic diseases like diabetes, hypertension, arthritis, cancer and history of stroke, information pertaining to physical activity, social participation, sleep pattern, day time spending on work or hobbies and recreation was also collected. The study was approved and ethical clearance was

obtained from the institutional ethics committee of the hospital.

**Statistics:** The data was analysed by descriptive statistics. Chi-square test was used to find out the association between two attributes and  $p < 0.05$  was considered to be statistically significant.

## Results

Of the 218 study subjects who participated in the study, 137 (62.84%) were females and 81 (37.16%) were males and depression was found among 64 (29.36%) of the participants.

When the demographic characteristics of the study population were analyzed, the mean age of the study population was 65.1 years. More than half of the respondents were Hindus 137 (62.84%) and majority of the study subjects were illiterates 124 (56.88%). Overall half of them were not working 119 (54.59%) and almost 86 (39.45%) belonged to class IV of SES. The socio-demographic characteristics of the elderly are given in table 1.

**Table-1: Socio-Demographic Characteristics of the Elderly**

Characteristics		Total (n=218) No. (%)
Sex	Males	81 (37.16)
	Females	137 (62.84)
Age	60-69 years	151 (69.27)
	$\geq 70$ years	67 (30.73)
Religion	Hindus	137 (62.84)
	Muslims	81 (37.16)
Education Status	Illiterates	124 (56.88)
	Literates	94 (43.12)
Occupation	Non-working	119 (54.59)
	Working	99 (45.41)
Socio-Economic Status*	Class I	18 (8.26)
	Class II	52 (23.85)
	Class III	57 (26.15)
	Class IV	86 (39.45)
	Class V	5 (2.29)
Family Type	Nuclear	68 (31.19)
	Joint	82 (37.62)
	Three generation	68 (31.19)
Marital Status	Widowed/ unmarried/ divorced	79 (36.24)
	Married	139 (63.76)

\*Modified B.G. Prasad Classification 2011

Of the 218, overall prevalence of depression was 64 (29.36%), of which 49 (22.48%) were mildly depressed and 15 (6.88%) were found to be

suffering from severe depression. Females 43 (31.39%) were more depressed compared to that of 21 (25.93%) males ( $X^2=1.049$ ,  $df = 2$ ,  $p=0.5919$ , not significant). The details of prevalence of depression among the elderly as per GDS are given in table 2.

**Table-2: Prevalence of Depression among the Elderly as per Geriatric Depression Scale**

GDS Score	Males No. (%)	Females No. (%)	Total No. (%)
Normal (0-9)	60 (74.07)	94 (68.61)	154 (70.64)
Mild (10-19)	17 (20.99)	32 (23.36)	49 (22.48)
Severe (20-30)	4 (4.94)	11 (8.03)	15 (6.88)
<b>Total</b>	<b>81 (37.16)</b>	<b>137 (62.84)</b>	<b>218 (100.00)</b>

( $X^2 = 1.049$ ,  $df = 2$ ,  $p = 0.5919$ , Not significant)

When the role of socio-demographic factors leading to depression was assessed, it was

observed that depression was higher among study subjects aged 60-69 years and more in females. It was observed that 37 (57.81%) widowed, divorced or unmarried were depressed compared to 112 (72.73%) married without depression ( $X^2=18.25$ ,  $df=1$ ,  $p<0.0001$ , highly significant). Literate individuals 75 (48.70) were leading a normal life compared to illiterates 45 (70.31%) who were suffering from depression ( $X^2=6.664$ ,  $df = 1$ ,  $p=0.0098$ , significant). An inverse relationship was also found between SES and depression, with depression being higher in low socioeconomic group. The role of socio-demographic characteristics leading to depression among the elderly is explained in table 3.

**Table-3: Pattern of Alcohol Consumption in the Study Population**

Characteristics		Subjects Without Depression (n=154)	Subjects With Depression (n=64)	$X^2$	df	p value	Significance
Sex	Males	60 (38.96)	21 (32.81)	0.7320	1	0.3922	Not Significant
	Females	94 (61.04)	43 (67.19)				
Age	60-69 years	112 (72.73)	39 (60.94)	2.952	1	0.0858	Not Significant
	≥ 70 years	42 (27.27)	25 (39.06)				
Education Status	Illiterates	79 (51.30)	45 (70.31)	6.664	1	0.0098	Significant
	Literates	75 (48.70)	19 (29.69)				
Occupation	Non-working	78 (50.65)	41 (64.06)	3.281	1	0.0701	Not Significant
	Working	76 (49.35)	23 (35.94)				
Socio-Economic Status	Class I + II	59 (38.31)	11 (17.19)	14.91	2	0.0006	Highly Significant
	Class III	43 (27.92)	14 (21.88)				
	Class IV + V	52 (33.77)	39 (60.93)				
Family Type	Nuclear	47 (30.51)	21 (32.81)	0.1441	2	0.9305	Not Significant
	Joint	59 (38.31)	23 (35.93)				
	Three generation	48 (31.16)	20 (31.25)				
Marital Status	Widowed/ unmarried/ divorced	42 (27.27)	37 (57.81)	18.25	1	0.0001	Highly Significant
	Married	112 (72.73)	27 (42.19)				

**Table-4: Role of Risk Factors leading to Depression among the Elderly**

Risk Factors		Subjects Without Depression (n=154)	Subjects With Depression (n=64)	$X^2$	df	p value	Significance
Substance Abuse	Yes	64 (41.56)	35 (54.69)	3.144	1	0.0762	Not Significant
	No	90 (58.44)	29 (45.31)				
Physical Activity	Active	82 (53.25)	15 (23.44)	16.27	1	0.0001	Highly Significant
	Inactive	72 (46.75)	49 (76.56)				
Chronic Diseases	Absent	121 (78.57)	29 (45.31)	23.30	1	0.0001	Highly Significant
	Present	33 (21.43)	35 (54.69)				
Social Participation	Present	118 (76.62)	35 (54.69)	10.40	1	0.0013	Significant
	Absent	36 (23.38)	29 (45.31)				
Day Time Spending	Engaged	108 (70.13)	25 (39.06)	18.34	1	0.0001	Highly Significant
	Not Engaged	46 (29.87)	39 (60.94)				
Recreation	Yes	97 (62.99)	42 (65.63)	0.1362	1	0.7121	Not Significant
	No	57 (37.01)	22 (34.37)				
Sleep Pattern	Satisfied	84 (54.55)	11 (17.19)	25.66	1	0.0001	Highly Significant
	Not Satisfied	70 (45.45)	53 (82.81)				

When the role of risk factors leading to depression was assessed, it was found that 82 (53.25%) elderly who were involved in physical activity were not under depression compared to 49 (76.56%) physically inactive suffering from depression ( $X^2=16.27$ ,  $df=1$ ,  $p<0.0001$ , highly significant). Depression was found to be significantly higher among those who lacked adequate sleep 53 (82.81%) compared to 84 (54.55%) who had normal sleep ( $X^2=25.66$ ,  $df=1$ ,  $p<0.0001$ , highly significant). Depression was also present among those who lacked social participation, and who did not engage themselves in day time work or hobbies. Role of risk factors leading to depression among the elderly are explained in table 4.

## Discussion

Depression in elderly is often overlooked as a clinical diagnosis, since it is assumed to be a normal response to aging, physical losses or other life events. It causes excess disability and has an adverse interaction with physical health.<sup>[41]</sup> Our study revealed a high rate of depression in elderly people which could be attributed to factors like single or widowed marital status, low socio-economic status, presence of chronic diseases, physical inactivity, lack of social participation and inadequate sleep.

In our study, the rate of depression was found to be higher in females 43 (31.39%) when compared to males 21 (25.93%). This is because women, throughout their lifetime face more stressful events and have a greater sensitivity towards them. Hence they tend to get depressed in response to stressful life events. Indeed, the prevalence of depression has been found to be higher in elderly women in other studies done by Jain RK<sup>[12]</sup>, Rajkumar AP<sup>[13]</sup> and by Poongothai S<sup>[14]</sup>. On the contrary, a study done in a rural community in South Kerala by Sandhya GI<sup>[4]</sup> showed that the prevalence of depression was lower in females (22.9%) when compared to males (29.1%).

The present study highlights the importance of marital status as an important socio-demographic characteristic leading to depression. The finding that the elderly who had lost their spouse (57.81%) were suffering from a higher rate of

depression could be explained by the fact that late life emotional support by the partner is of importance to their psychological health. Death of a spouse renders them vulnerable to mental stress. Circumstances which lead to divorce or separation, especially if it occurs at a late stage, can lead to adjustment problems, which may manifest as depressive symptoms. In addition, people who remain single, lack children and spousal support, for whom life-events become much more unbearable, especially at an old age. Such factors may inevitably lead to psychological stress and depression. A study done by Kamble SV<sup>[5]</sup> also concluded that widowhood, marital disruption and single status were associated with a higher prevalence of depression in both men and women.

The findings of our study indicate that depression was higher among elderly subjects (60.93%) belonging to low SES, which is analogous to other studies done by Jain RK<sup>[12]</sup> and Rajkumar AP<sup>[13]</sup>. This could be ascribed to the fact that people of low SES have poor access to quality health care due to poverty. Hence they are more prone for depression.

Most of the depressed subjects (76.56%) were physically inactive and (54.69%) had at least one chronic disease. When a person is physically inactive, along with the physical problems related to physical inactivity like chronic diseases, negative emotional effects can also develop. Poor physical health may affect a person's independence, change the way he lives, perceives himself and relates to others. Hence he may find it difficult to cope with his illness which may lead to depression. This is analogous to other studies done by Seby K<sup>[4]</sup> and Rajkumar AP<sup>[13]</sup>. A hospital based study done by Sood AI<sup>[15]</sup> in Punjab also reported that 26% of the non-psychiatric elderly inpatients were suffering from depression. Thus poor physical health is a major cause of depression in late life.

Depression was greater among those who lacked social participation. Lack of social participation can lead to feelings of loneliness and emptiness. Hence the person becomes isolated and eventually depressed. A study done in a rural community in South Kerala by Sandhya GI<sup>[4]</sup> also observed that



the rate of depression was higher in people who lacked social participation.

Lack of adequate sleep among 82.81% subjects was also a risk factor leading to depression, similar findings were noted by Jain RK<sup>[12]</sup> in the study done in urban slums of Mumbai. Normal sleep is a restorative state. However, when sleep is disrupted or inadequate, it can lead to increased tension, vigilance and irritability. Hence lack of sleep plays a major role in causing depression.

The transition in social and cultural values may have a deleterious effect on the physical and mental health of the elderly and depression is one such problem which is a major cause of concern and may represent a serious public health problem in the near future. Depression in elderly is evitable and can be prevented by addressing the risk factors leading to depression was concluded by study done by Korte J.<sup>[16]</sup> Hence effective interventions to prevent depression and promote mental health of the elderly is the need of the hour.

## Conclusion

A high prevalence (29.36%) of depression was found among elderly using the GDS. This study concludes that GDS is an easy to administer and culturally acceptable tool to assess depression in a community. Quality health care of the elderly reduces the future burden of diseases and disabilities. Geriatric Clinics should be introduced in the health care services. The stigma of mental health problems in elderly should be reduced through public awareness. Support through counseling is essential in those who are isolated and vulnerable for developing depression. It also highlights that with the epidemiological transition resulting in an increase in the number of elderly people in the total population, geriatric depression may emerge as a public health problem which needs to be restricted by large scale studies and there is a need for the development of effective preventive strategies to halt this silent epidemic.

## ACKNOWLEDGEMENT

The authors express heartfelt gratitude to all the participants of this research who shared their valuable experiences & spent their precious time.

## References

1. Singh A, Misra N. Loneliness, depression and socialability in old age. *Ind Psychiatry J* 2009;18(1):51-55.
2. Kumar V. Aging in India- an overview. *Indian J Med Res* 1997;106:257-264.
3. Seby K, Chaudhury S, Chakraborty R. Prevalence of psychiatric and physical morbidity in an urban geriatric population. *Indian J Psychiatry* 2011;53(2):121-7.
4. Sandhya GI. Geriatric Depression and Related Factors- A Cross sectional Study from a Rural Community in South Kerala. *Journal of The Indian Academy of Geriatrics* 2010;6(2):61-63.
5. Kamble SV, Dhumale GB, Goyal RC, Phalke DB, Ghodke YD. Depression among Elderly Persons in a Primary Health Centre Area in Ahmednagar, Maharashtra. *Indian J Public Health* 2009;53(4):253-255.
6. Sherina M, Rampal SL, Aini M, Norhidayati MH. The prevalence of depression among elderly in an urban area of Selangor, Malaysia. *The International Medical Journal* 2005;4(2):57-63.
7. Barua A, Kar N. Screening for depression in elderly Indian population. *Indian J Psychiatry* 2010;52(2):150-3.
8. Romanelli J. The significance of depression in older patients after myocardial infarction. *Journal of the American Geriatrics Society* 2000;50(5):969-970.
9. Yesavage JA, et al. Development and validation of a geriatric depression screening scale: a preliminary report. *J Psychiatr Res* 1983;17(1):37-49.
10. Mahajan BK, Gupta MC. Social Environment. In: Mahajan BK, Gupta MC, ed. *Textbook of Preventive and Social Medicine*, 3rd edition, New Delhi: M/S Jaypee Brothers;2003:117-118.
11. Khattri KB, Nepal MK. Study of depression among geriatric population in Nepal. *Nepal Med Coll J* 2006;8(4):220-223.
12. Jain RK, Aras RY. Depression in Geriatric Population in Urban Slums of Mumbai. *Indian J Public Health* 2007;51(2):112-3.
13. Rajkumar AP, Thanagadurai P, Senthilkumar P, Gayathri K, Prince M, Jacob KS. Nature, prevalence and factors associated with depression among elderly in a rural South Indian Community. *Int Psychogeriatr* 2009;21(1):372-8.
14. Poongothai S, Pradeepa R, Ganesan A, Mohan V. Prevalence of Depression in a Large Urban South Indian Population-The Chennai Urban Rural Epidemiology Study (Cures-70). *PLoS ONE* 2009;4(9):e7185. doi:10.1371/journal.pone.0007185
15. Sood A, Singh P, Gargi PD. Psychiatric morbidity in non- psychiatric geriatric inpatients. *Indian J Psychiatry* 2006;48(1):56-61.
16. Korte J, Bohlmeijer ET, Smit F. Prevention of depression and anxiety in later life: design of a randomized controlled trial for the clinical and economic evaluation of a life-review intervention. *BMC Public Health* 2009;9:250.

**Cite this article as:** Pracheth R, Mayur SS, Chowti JV. Geriatric depression scale: A tool to assess depression in elderly. *Int J Med Sci Public Health* 2013; 2:31-35.

**Source of Support:** Nil

**Conflict of interest:** None declared