

# A Prospective Study on Prevalence of Depression Among Elderly Patients Attending the Psychiatry OPD of a Tertiary Care Hospital in North India

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## ABSTRACT

**Background:** Cognitive impairment is a common clinical issue among elderly patients suffering with depression and has a more obscure etiology. The present study aimed to determine the prevalence of cognitive impairment and depression in geriatric patients attending Psychiatric OPD.

**Methods:** This Prospective cross-sectional study was carried out on elderly people (n=330) attending the Psychiatry OPD of Teerthanker Mahaveer Medical College and Hospital, Moradabad. The cognitive function and depression were assessed by applying standardized Mini-Mental State Examination of Folstein (MMSE) and the Geriatric Depression Scale (GDS), respectively.

**Results:** Prevalence of cognitive impairment was 35.71% (36.41% women, 24.5% men), whereas the prevalence of depression was 45.45% (51.02% women, 39.89% men) significant differences were observed.

**Conclusion:** Cognitive impairment and depression were found to be more prevalent in the females than in the males. Hence, psychiatrist should pay special attention for early detection and treatment of depressive symptoms in elderly people with cognitive impairment.

**Key words:** Cognitive impairment, Depression, Elderly subjects

## INTRODUCTION

We know that Elderly people are the ones that are mostly neglected and Central Nervous Disorders like Depression is one of the most important cause that they are being neglected in the society. The geriatric population is defined as population aged 60 years and above.<sup>[1]</sup> By the year 2025, this population is expected to constitute 10.2% of the total world population.<sup>[2]</sup> The phenomenon of population ageing is already a major

social health problem in the developed countries.<sup>[3]</sup> The life expectancy of an average Indian has increased from 54 years in 1981 to 64.6 years in 2002.<sup>[4]</sup> The geriatric population is likely to constitute 18.4% of the total population in India by the year 2025.<sup>[5]</sup>

Although the improved healthcare promises longevity but social and economic conditions, such as poverty, break up of joint families, and poor services to the elderly pose a psychiatric threat to them.<sup>[6]</sup> Moreover, the feeling of loneliness along with the natural ageing in the physical and physiological functioning, make the elderly more prone to psychological disturbances.<sup>[7]</sup> Functional dependency is common among elderly people and many will need assistance in their activities of daily living.

Long-term care has become one of the major problems facing an ageing society.<sup>[8]</sup> A recent review reported, a wide range of estimates for mental health morbidities in the elderly, ranging from 2.2 to 33.3% for age specific populations.<sup>[9]</sup>

The magnitude of mental indisposition in the Indian situation is a serious cause of concern. The main risk factors are loss of fortune, fall in self-esteem, sense of

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helplessness, illiteracy, poor health, social and gender discrimination, financial debt and status as a widowed person. The physical illnesses have a causal role or are associated significantly or non-significantly with psychiatric illness, especially with cognitive impairment and depression of all the problems associated with an ageing population, health care demands top priority.<sup>[10]</sup>

In the light of the above considerations, this study was intended to identify the psychiatric problems of the elderly subjects in a general hospital setting, in order to assess their health needs, which will be useful to plan health and other supportive services for the elderly, in initiation of geriatric clinics and in the community.

So the aim of this study was to evaluate the cognitive impairment and depression problems in elderly subjects.

## MATERIALS AND METHODS

The present cross-sectional descriptive study was conducted on 60 years and above elderly subjects. The study was undertaken on the people, who were attending general medicine outpatient department in Teerthanker Mahaveer Medical College & Research Centre for a period of six months.

525 elderly subjects aged 60 years and above of both sexes were enrolled for the study. The subjects were enrolled after initial evaluation by physician, study was conducted based on inclusion and exclusion criteria.

Each study subject was put to a series of tests, using a pre-tested, pre-structured study questionnaire after completion of physical assessment by physician.

### Assessment of cognitive function and depression

Cognitive function was assessed by applying standardized Mini-Mental State Examination (MMSE) of Folstein.<sup>[11]</sup> MMSE scores range from 0 to 30, with lower scores indicating increasing severity of cognitive impairments in the domains of orientation, memory, attention, and executive functions. Subjects with cognitive impairment had scores between 0 and 18. The sensitivity was 87%, and specificity was 82%. Depression was assessed with the Geriatric Depression Scale (GDS),<sup>[12]</sup> a questionnaire specifically developed for screening depressive symptoms in elderly populations. Yesavage's Geriatric Depression Scale (GDS) - Shorter version 44 was used to detect whether the study subject was having depression or not.

The shorter version of the scale consists of 15 questions and each negative answer will carry a mark and thus the more the scoring is, the more the chances of having depression. The maximum score that one can get is 15, which indicates a severe depression. The cut-off for normal range was 10. The sensitivity and specificity was 84% and 95%, respectively.

### Statistics

The data obtained were analyzed with the statistical package for social sciences software (SPSS).

## RESULTS

The Demographic details of the patients can be seen in Table 1. Hypertension and Diabetes were common chronic diseases present in the study, which were 19.70% and 11.21% respectively and 12.42 % having both. (Table 1).

**Table 1: Sociodemographic features of the subjects.**

Distribution	No. of Person (n)	Percentage (%)
Age Distribution (Years)		
	No.	%
60-65	206	62.42
66-70	64	19.39
71-75	45	13.64
76-80	8	2.42
81-85	7	2.12
Total person	330	
Sex Distribution		
Male	183	55.45
Female	147	44.55
Total person	330	
Religion Distribution		
Muslim	18	5.45
Hindu	290	87.88
Christian	22	6.67
Total person	330	
Education Status		
Illiterate	223	67.58
Primary Education	70	21.21
Secondary Education	28	8.48
Higher Secondary Education	3	0.91
Diploma	2	0.61
Degree and above	4	1.21
Total person	330	
Marital Status		
Unmarried	6	1.82
Married	189	57.27
Divorced	0	0.00
Separated	3	0.91
Widowed	132	40.00
Total person	330	
Socioeconomic Status		
Upper Class	17	5.15
Higher Middle	34	10.30
Middle	76	23.03
Lower Middle	118	35.76
Lower Class	85	25.76
Total person	330	100
Chronic Diseases		
Hypertension (HTN)	65	19.70
Diabetes Mellitus (DM)	37	11.21
HTN and DM	41	12.42
Other diseases	187	56.67
Total person	330	

As evident from Table 2, 35% elderly subjects had cognitive impairment, in that 22.08% were mild cognitive impairment, 12.09 % had moderate impairment and 0.8% had severe cognitive impairment. The prevalence and severity of cognitive impairment was found to be more with increasing age.

The prevalence of cognitive impairment in males was 24.5% (17.39% had mild cognitive impairment, 6.01%

were with moderate impairment and 1.09% were having severe impairment). While females had 36.41% impairment, of this 25.17%, 11.56% and 0.68% had mild, moderate and severe cognitive impairment, respectively. The females had higher value of cognitive impairment than in the males. This difference was statistically significant (p value <0.005, Table 3).

**Table 2: Distribution of subjects with cognitive impairment based on age.**

S. No.	Age Distribution (yrs)	MMSE				Total No. of person
		Normal (%)	Mild (%)	Moderate (%)	Severe (%)	
1	60-65	138 (70.87)	49 (19.90)	22 (8.25)	2 (0.97)	206
2	66-71	50 (78.13)	12 (18.75)	2 (3.13)	0 (0)	64
3	71-75	27 (60.00)	11 (24.44)	6 (13.33)	1 (2.22)	45
4	76-80	3 (37.50)	1 (12.50)	3 (37.50)	0 (0)	8
5	81-85	2 (28.57)	3 (42.86)	2 (28.57)	0 (0)	7
<b>Total</b>		229 (64.39)	68 (22.08)	30 (12.09)	3 (0.81)	330

X<sup>2</sup>= 64.57, df= 2; p value < 0.0001; highly Significant

**Table 3: Distribution of subjects by cognitive status with relation to gender.**

S. No.	Gender	MMSE				Total No. of person
		Normal (%)	Mild (%)	Moderate (%)	Severe (%)	
1	Male	140 (76.50)	31 (17.39)	11 (6.01)	2 (1.09)	183 (55.45)
2	Female	92 (62.59)	36 (24.17)	17 (11.56)	1 (0.68)	147 (44.55)
3	Total					330 (100)

X<sup>2</sup>= 64.57, df= 12.6; p value < 0.005 significant

Cognitive impairment was more (31.71%) among those who were having combined chronic diseases (Hypertension and Diabetes), followed by only diabetes (32.43%) and hypertension (29.23%). But this was not statistically significant (Table 4).

**Table 4: Distribution of elderly subjects by cognitive status with relation to diabetes mellitus and hypertension illness**

S. No.	Chronic Diseases	Cognitive Impairment		Total No. of persons	Percentage %
		Normal	Impaired		
1	HTN	46 (70.77)	18 (27.69)	65	19.70
2	DM	25 (67.57)	12 (32.43)	37	11.21
3	HTN + DM	28 (68.29)	13 (31.71)	41	12.42
4	Others	133 (71.12)	53 (28.34)	187	56.67
<b>Total</b>		232 (70.30)	96 (29.09)	330	100.00

X<sup>2</sup>= 0.79, df= 3; p value > 3.1; Not Significant

Overall prevalence of depression was 45.45%. It was observed that the prevalence of depression increased with

increasing age group (41.27% in age group of 60-70 years, 45.41% in age group of 70-80 years and 57% in age group 80 above), which was significant statistically (Table 5). The prevalence of depression was found to be more in elderly females (51.02%) than in male subjects (39.89%). The difference in the prevalence of depression between the male and female subjects was statistically significant.

**Table 5: Prevalence of depression in study population based on age.**

S No	Age Distribution (years)	Geriatric Depression Scale (GDS)		Total No. of persons
		Yes (%)	No (%)	
1	60-65	96 (46.60)	110 (53.40)	206
2	66-71	23 (35.94)	41 (64.06)	64
3	71-75	24 (53.33)	21 (46.67)	45
4	76-80	3 (37.50)	5 (62.50)	8
5	81-85	4 (57.14)	3 (42.86)	7
<b>Total</b>		150 (45.45)	180 (54.55)	330

X<sup>2</sup>= 6.84, df= 1; p= 0.009; Significant

The prevalence of depression in people suffering with hypertension was 46.15%. While people with diabetes had 43.24%. But this difference was not statistically significant when compared with elderly people having both diseases

## DISCUSSION

The present cross sectional study was done to evaluate the prevalence of cognitive impairment and depression among the geriatric population who were residing nearby TMMCRC, Moradabad UP. Depressive symptoms and cognitive impairment were highly significantly correlated in cross sectional, showing that they do co-occur in this age.<sup>[13]</sup>

This study clearly showed that 35.0% elderly subjects had cognitive impairment. Besides, the prevalence and severity of cognitive impairment was found to be positively associated with increasing age. The males had a lower prevalence of cognitive impairment when compared to female, which was statistically significant. The both mild and moderate impairment were higher in females compared to males. Even though cognitive impairment was more (31.71%) with combined disease patients (Hypertension and Diabetes), but there was no significant difference observed with these patients when compared to individual diseases.

In the present study the overall prevalence of depression was 45.45%. The prevalence of depression increased with increasing age group in this study. The prevalence of depression was found to be more in elderly females (51.02%) than in male subjects (39.89%). More than 50.0% of the females were suffering from depression while only a shade above 1/3rd of the males was suffering from the same. The reasons for high prevalence among elderly females might be widowhood status, living alone or neglected by family members, poor status in the family, increased physical dependency, lack of income and poor health. The difference in the prevalence of depression between the male and female subjects was statistically significant. The prevalence of depression in people suffering with hypertension was 46.15%. Whereas people

with diabetes had prevalence of 43.24%. However there was no significant difference observed with these patients when compared to combined disease patients.

Previous study by Singh VB et al (2005), showed that the prevalence rate of depression was 18.0%, more common in the elderly women (37.5%) than men (14.28%).<sup>[14]</sup> In another study by Palmer RM (1999), found that 10.0% of people older than 65 years had depressive symptoms and 1.0% had major depressive disorders.<sup>[15]</sup> In study by Goswami A et al (2006), it was found that the prevalence rate of depression was 44.5% and 63.2% in male and female subjects respectively, and this difference was found to be statistically significant.<sup>[16]</sup> Jain RK (2007) had showed that the prevalence of depression was found to be 45.9% with the mean score of 5.10+8.26.<sup>[17]</sup> The studies of Hughes et al (1993)<sup>[18]</sup> and Venkoba Rao A (1987)<sup>23</sup> revealed the prevalence of depression as 61.5% and 43.0% respectively. Our study concur with previous findings that depression is prevalent in elderly patients and that too in females.

A few studies show that depression is a risk factor for the development of cognitive decline, whereas others could not confirm this finding. The relationship between depression and cognitive impairment shows that depression in old age is an associated phenomenon of already existing cognitive impairment rather than an independent risk factor. Our findings, based on various measures of cognitive function and depression scale are in line with previous prospective population-based studies that people aged 60 and older showed an impairment of cognitive functions and depression.

## CONCLUSION

Therefore, early detection of depressive symptoms in elderly people with cognitive impairment is of great importance to develop preventive and early rehabilitation. However, more detailed research into the causes of cognitive impairment, relationship between cognitive functions and depression, further identifying high risk groups for screening and which methods of screening are most successful would be useful.

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