

## Prevalence of Depression Among Geriatric Persons in a Rural Community From Uttar Pradesh, India

Research Article

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### Abstract

**Background:** Senior Citizen Elderly or old age consists of ages close to or exceeding the average life span of human beings. The limit of old age cannot be defined precisely because it does not have the same meaning in all societies by the middle of this century, there could be 100 million elderly people living in the India according to United Nations World population prospects report. Depression is the common psychiatric disorder among elderly. The aim of the study was to estimate the prevalence of Depression among elderly in a rural population. Design of the study was a cross sectional study conducted among 600 elderly populations in rural community of Lucknow, Uttar Pradesh.

**Methods:** A validated geriatric depression scale was used to assess their depression status and the various demographic details, socio economic status and living arrangements were analyzed to see for any association with depression. Statistical analysis was chi square test and odds ratio.

**Results:** Among the 600 elderly subjects studied. The prevalence of depression among elderly males was found to be 56.8% and among females 79.2% and the difference in the prevalence of depression among males and females was found to be statistically significance ( $p < 0.001$ ).

**Conclusions:** The results confirmed that there is a high prevalence of depression among the elderly population. There is a need to improve geriatrics health care services combined with proper monitoring and evaluation.

**Keywords:** Depression; Geriatrics; Health Care Services.

### Introduction

Elderly or old age consists of ages close to or exceeding the average life span of human beings. Old age refers to ages nearing or surpassing the life expectancy of human beings, and is thus the end of the human life cycle. The limit of old age cannot be defined precisely because it does not have the same meaning in all societies by the middle of this century, there could be 100 million elderly people living in the India according to United Nations World population prospects report. Ageing is a universal process that is associated with deteriorating health status. Even though depression is the commonest psychiatric disorder in the elderly, it is commonly misdiagnosed and under treated. This could be due to the misconception that depression is part of aging rather than a treatable condition. For a developing nation like India, this may pose mounting pressures on various socio economic fronts including pension outlays, health care expenditures, fiscal discipline, savings levels etc.

Social and cultural shift has also encroached rural India, which for centuries it was boasted of joint family system with high respect for its elderly members, but now it is more of nuclear families ignoring the elderly [2]. Joint family system with high respect for its elderly members, but now it is more of nuclear families ignoring the elderly [1]. Ageing is a universal process that is associated with deteriorating health status. Today depression is one of the commonest cause of disability in the elderly. Elderly people tend to be physically less healthy, and are more socially withdrawn. They are less contented with the manner in which they handle their problems and social life according to world health organization reports on elderly [3-5]. A very few studies has been done among elderly in the rural population to assess their depression. So this study will reflect the magnitude of depression among elderly in rural population of Lucknow, Uttar Pradesh.

The aim of the present study was to estimate the prevalence of

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Depression among elderly in a rural population of Lucknow, Uttar Pradesh.

**Methods**

The present cross sectional study was conducted for a period of 8 months from June 2016 - December 2016 at Integral Institute of Medical Sciences & Research, Lucknow. Cluster sampling method was used for selecting the elderly as study subjects. Based on assumption of 25% as prevalence of depression and relative precision 15 %, the minimum sample size required for the study was 512. Though the minimum sample size calculated was 512 it was decided to have a little larger sample size of 600 for better precision. Thirty clusters were selected by probability proportionate to size (PPS) method and 15 elderly were selected from each cluster to obtain sample size of 600 elders. Sample size calculation was performed as follows,

$$N = Z_{1-\alpha/2}^2 PQ/\epsilon^2$$

N = total sample size (number of experimental units)

P = Prevalence of metabolic disorder (25 % Taken)

Q = 1-P (75 %)

Z<sub>(1-α/2)</sub> = related to the chosen significance criterion α; can be found in normal distribution tables, (1.96)

ε: relative precision (15 % is taken in the present study)

The non respondents and those who are not willing to participate in the study were excluded and an informed consent was obtained from the study subjects who were participated in the study. A validated geriatric depression scale was used to assess their depression status and the various demographic details, socio economic status and living arrangements were analyzed to see for any association with depression.

**Results**

The total number of elderly subjects studied was 600. Elderly males were (39.1%) and females were 274 (60.9%). The elderly

females were almost two thirds of the total subjects. Large proportion of elders 222 (49.3%) were in the age group 60-65 years, followed by 129 (28.7%) in the age group more than 70 years and 99 (22.0%) in the age group 66-70 years. Age group and sex distribution of the elderly is given in Table 1.

Among the 600 elderly subjects studied 317 were found to have depression and the overall prevalence of depression was 70.4% with 95% confidence interval from 66.2% to 74.6%. The prevalence of depression among elderly males was found to be 56.8% and among females 79.2% and the difference in the prevalence of depression among males and females was found to be statistically significance (p<0.001). The prevalence of depression among elders in the age groups 60-65, 66-70 and more than 70 years was found to be 66.2%, 78.8% and 71.3% respectively and the difference in the prevalence of depression in the above three age groups was found to be statistically not significance (p = 0.07). Details given in Table 2.

Prevalence of severe depression among elderly was found to be 51.3% with confidence interval from 45.8 to 56.9%. The prevalence of severe depression among elderly males was found to be 31.8% and among females was found to be 63.9% and the difference in the prevalence of severe depression among males and females is found to be statistically significant (p<0.01).

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**Table 1. Distribution of elderly by age group and sex.**

Age group	Male	Female	Total
60-65 years	87	135	222 (49.3)
66-70 years	30	69	99 (22.0)
>70 years	59	70	129 (28.7)
<b>Total</b>	<b>176 (39.1)</b>	<b>274 (60.9)</b>	<b>600</b>

**Table 2. Prevalence of depression classified by sex and age group.**

	Total N	Depression N	Prevalence of depression %	95% CI	P value
Sex					
Male	176	100	56.8	49.5 - 64.1	<0.001
Female	274	217	79.2	67.4 - 91.0	
Age group					
60-65 years	222	147	66.2	60.0 - 72.4	0.07
66-70 years	99	78	78.8	70.8 - 86.4	
>70 years	129	92	71.3	63.5 - 794.1	

Prevalence of severe depression among elderly was found to be 51.3% with confidence interval from 45.8 to 56.9%. The prevalence of severe depression among elderly males was found to be 31.8% and among females was found to be 63.9% and the difference in the prevalence of severe depression among males and females is found to be statistically significant ( $p < 0.01$ ).

The prevalence of severe depression among elderly in age group 60-65, 66-70 and more than 70 years was found to be 50.5%, 59.6% and 46.5% respectively and the difference in the prevalence of depression among the three age groups is found to be statistically not significant ( $p = 0.13$ ). Details given in Table 3. The prevalence of mild depression among elderly was found to be 19.1% with 95% CI from 15.7% to 23.0%. The prevalence of mild depression among elderly males was found to be 25.0% and among females

15.7% and the difference in the prevalence of mild depression among males and females is found to be statistically significant ( $P < 0.01$ ).

The prevalence of mild depression in the age group 60-65, 66-70, and more than 70 years was found to be 15.8%, 19.2% and 25.6% respectively. Unlike the prevalence of depression and severe depression, the prevalence of mild depression increased with increasing age. The difference in prevalence of mild depression among different age group is found to be statistically not significant ( $P = 0.08$ ).

Sex, age group, education, occupation were evaluated for association with depression. Females were found to be 2.8 times at a greater risk for depression than males and it is found to be

**Table 3. Prevalence of severe depression among elderly classified by sex and age group.**

	Total N	Depression N	Prevalence of severe depression %	95% CI	P value
<b>Sex</b>					
Male	176	56	31.8	24.9 - 38.7	<0.001
Female	274	175	63.9	58.2 - 69.5	
<b>Age group</b>					
60-65	222	112	50.5	43.9 - 57.1	0.13
66-70	99	59	59.6	49.9 - 69.2	
>70	129	60	46.5	37.8 - 55.1	

**Table 4. Prevalence of mild depression among elderly classified by sex and age group in years.**

	Total N	Depression N	Prevalence of mild depression%	95% CI	P value
<b>Sex</b>					
Male	176	44	25	18.7 - 31.3	<0.01
Female	274	43	15.7	11.4 - 20.0	
<b>Age group</b>					
60-65	222	35	15.8	11.0 - 20.6	0.08
66-70	99	19	19.2	11.4 - 27.0	
>70	129	33	25.6	18.1 - 33.1	

**Table 5. Association between risk factors and depression.**

	Not depressed N	Depressed N	Odds ratio	95% CI	P Value
<b>Sex</b>					
Male	76	100			
Female	57	217	2.8	1.90 - 4.39	<0.00
<b>Age group</b>					
60-70 years	96	227			
>70 years	37	90	1.02	0.65 - 1.61	0.9
<b>Education</b>					
Literate	93	88			
Illiterate	40	229	6.05	3.87 - 9.43	<0.001
<b>Occupation</b>					
Employed	45	48			
Unemployed	88	269	2.86	1.78 - 4.59	<0.001

statistically significant ( $P=0.001$ ). Higher age group more than 70 years is found to be risk factors for depression compared to lower age group. Illiterates are at 6 times at a greater risk for depression compared to literates and it is found to be statistically significant ( $P=0.001$ ). Unemployed elderly subjects are 2.8 times at a greater risk for depression compared to employed ones and this association is found to be statistically significant. Living arrangement is not found to be a risk factor for depression. Details are given in table number 5.

## Discussion

In this study among the 600 elderly subjects studied 317 were found to have depression and the overall prevalence of depression was 70.4%. Which was higher than the study done by Shankar Radha Krishnan et al., [6] In the present study the prevalence of depression among elderly females 79.2%.

The elderly females have much higher prevalence of depression and the difference in the prevalence of depression is found to be statistically significant ( $p<0.001$ ). This result was higher than a study done in kanchepuram by Sati et al., in the present study the prevalence of severe depression among elderly were found to be 51.3% [7]. The prevalence of severe depression is found to be 11% according to Sharad et al., in a study done in Karnataka [8].

In the present study prevalence of mild depression among elderly was found to be 19.1% which is a lower prevalence than a study done by Rahata et al., which showed 52.2% [9]. In the present study females were found to be 2.8 times at a greater risk for depression than males and it is found to be statistically significant ( $P = 0.001$ ). The similar result was found in the study done in Bangalore using GDS-15 Scale revealed that females are found to be 1.4 times at a greater risk for depression than the males [10]. In the present study illiterates are at 6 times at a greater risk for depression compared to literates and it is found to be statistically significant ( $P = 0.001$ ). Similarly illiterates are at 5.5 times at a greater risk for depression in a study done in west Bengal. In

the present study Unemployed elderly subjects were 2.8 times at a greater risk for depression compared to employed ones and this association is found to be statistically significant. Similarly unemployed people were 3.04 times at risk for depression in a study done in west Bengal [1].

## Conclusion

The present study had shown the prevalence of mild depression among elderly was 19.1% and prevalence of severe depression was found to be 51.3%. Illiterates and unemployed elders were found to be severely depressed. Adequate measures should be taken to detect this psychiatric disorder in elderly.

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