Prevalence of depression among elderly in rural population of Bihar

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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.**Aim:**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 450 elderly populations in rural community.**Materials and Method** A validated geriatric depression scale(GDS30) was used to assess their depression statusand the various demographic details, socio economic status and living arrangements were analyzed to see for any association with depression. Statistical analysis was chi squaretest and odds ratio.**Results:** Among the 450 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). **Conclusion:** The results confirmed that there is a high prevalence of depression among the elderly population. Thereis 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 ofhuman 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 united Nation agreed cut off is 60+ years to refer to the older or elderly persons. Within the elderly population, further classification like oldest old (normally those 80+) and centenarian (100+) and ever super centenarian (110+) are also made.1 The limit to fold 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[2].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 no wit is more of nuclear families ignoring the elderly[3].

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Joint family system with high respect for its elderly members, but now it is more of nuclear families ignoring the elderly.4 Ageing is a universal process that is associated with deteriorating health status. Today depression is one of the commonest causes 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 Nalanda District, Bihar. The aim of the present study was to estimate the prevalence of Depression among elderly in a rural population of Nalanda District, Bihar.

Materials and Methods

This prospective, cross sectional study was conducted at Department of PSM,Nalanda Medical College and Hospital, Patna and Vardhman Institute of Medical Sciences, Pawapuri, Nalanda, Bihar. Thestudy was conducted for a period of 12 months fromJune 2020-May 2021.The study was approved by the institutional research and ethical committee. An informed and written consent was taken from all the participating subjects prior to the commencement of the study. 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 450 for better evidence Thirty clusters were selected by probability proportionate to size (PPS) method and15 elderly were selected from each cluster to obtain samplesize of 450 elders.

Sample size calculation was per formed as follows,

$$N = Z^2_{1-\alpha/2} PQ/\varepsilon^2$$

N= total sample size (number of experimental units)

P= Prevalence of metabolic disorder (25%Taken)
Q=1-P   (75%)
Z(1-(α/2))= 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 wereexcluded and an informed consent was obtained from the study subjects who participated in the study. A validated geriatric depression scale (GDS-30)6 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 was450. Elderly males were 176 (39.1%) and females were 274 (60.9%). The elderly females were almost two thirds of thetotal 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.

Table 1: Distribution of elderly by age group and sex

Age Group(yrs)	Male		Female		Total	
	No.	%	No.	%	No.	%
60-65	87	49.4	135	49.3	222	49.3
66-70	30	17	69	25.2	99	22.0
>70	59	33.6	70	25.5	129	28.7
Total	**176**	**39.1**	**274**	**60.9**	**450**	**100**

Among the 450 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% to74.6%. 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 andfemales 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 b e66.2%, 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) Table 2.

Table 2: Prevalence of Depression classified by sex and age group

		Total No.	Depressed No.	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 (yrs)	60-65	222	147	66.2	60.0-72.4	0.07
	66-70	99	78	78.8	70.8-86.4	
	>70	129	92	71.3	63.5-794.1	

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

Table 3: Prevalence of Severe Depression among elderly classified by sex and age group

		Total No.	Depressed No.	Prevalence of Severe Depression(%)	95% CI	P Value
Sex	Male	176	56	31.8	24.9-38.7	<0.001
	Female	274	175	63.9	58.2-69.5	
Age Group (yrs)	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	

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)in Table 3.

Table 4: Prevalence of Mild Depression among elderly classified by sex and age group in years

		Total No.	Depressed No.	Prevalence of Mild Depression (%)	95% CI	P Value
Sex	Male	176	44	25.0	18.7-31.3	<0.01
	Female	274	43	15.7	11.4-20.0	
Age Group (yrs)	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	

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 was not found to be statistically significant (P=0.08) (Table-4).

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 malesand it is found to be 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 areat 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. (Table5).

Table 5: Association between Risk Factors and Depression

		Not Depressed No.	Depressed No.	Odds Ratio	95%CI	P Value
Sex	Male	76	100	2.8	1.90-4.39	<0.00
	Female	57	217			
Age Group (yrs)	60-70	96	227	1.02	0.65-1.61	0.9
	>70	37	90			
Education	Literate	93	88	6.05	3.87-9.43	<0.001
	Illiterate	40	229			
Occupation	Employed	45	48	2.86	1.78-4.59	<0.001
	Unemployed	88	269			

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.7In the present study the prevalence of depression among elderly females79.2%.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 amongelderly were found to be 51.3%.8 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 itis 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[11]. 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 one in West Bengal[12].

Conclusion

The present study had shown the prevalence of mild depression among elderly was19.1% 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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