

## Original

# Comparative Study of Depressive disorders in Elderly from Rural and Semi urban Areas of Varanasi

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### ABSTRACT

Geriatric depression is an important public health problem. There is a dearth of community studies from India investigating geriatric depression and its associated risk factors.

The elderly in India face a multitude of psychological, social, and physical health problems. Hence, the present study was undertaken with the following objectives.

#### Study Objectives:

1. To assess the prevalence of depression among the elderly from rural and semi urban areas of Varanasi.
2. To determine the epidemiological factors which are associated with depression.

**Method:** By random sampling, the villages were selected. This study was conducted through house-to-house visits in the selected villages. Clinical examinations, observations and interviews were carried out by using a pre-designed, pre-tested Performa in the local language.

**Design:** A cross-sectional, observational, community based study.

**Period:** January 2011 to July 2012

**Setting:** The study was conducted in rural and suburban areas of Varanasi.

**Subjects:** The individuals who were aged 55 years and above were interviewed and examined.

**Size:** Two hundred and twelve subjects. The data was analyzed by using SPSS (Statistical Package for Social Sciences), version 17.

**Results:** Our study figures had higher rate of depressive disorder in rural (31%) population than sub urban (24%). Trend that is seen is prevalence is more in elderly aged 55-80 years. It is more till 80 years in rural. This rural semi urban difference ceases above 80 years beyond which semi urban slightly overtakes it. Further there is two fold increase from 55-60 group compared to 65-70 years group.

A big leap is seen in going from sixties to seventies almost witnessing two and half times increase in prevalence. This increase is also seen in semiurban but with an even greater rise (more than 3 times).

**Conclusion:** Mild depression was more prevalent (73.3%) in oldest old (>80) age as compared to other age groups. Rural population had higher rate of depressive disorder than suburban population

### INTRODUCTION

Ageing is a progressive state, beginning with conception and ending with death, which is associated with physical, social, and psychological changes. Worldwide, life expectancy is increasing. Currently about 10% of the world's population is

made up of older adults (aged 65 and above). This figure is set to rise steadily, to as much as 30% in some societies.

The future projections of global disability adjusted life years (DALYs) in the year 2020 show that in terms of global disease burden, unipolar major depression could become the

second leading cause in the disease burden after ischemic heart disease, especially in high income countries (W.H.O,Geneva,2001)<sup>1</sup>. A high prevalence of mental disorders is seen in old age. Predominant among these is depression.)

The World Health Organization estimated that the overall prevalence rate of depression in geriatric population generally varies between 10% and 20% depending on cultural situations (Rangaswamy SM, 2001)<sup>2</sup>.Community-based mental health studies have revealed that the point prevalence of depressive disorders among the geriatric population in India varies between 13 and 25 % ( Nand DN et al., 1976; Ramachandran V et al., 1982; Tiwari SC. 1999;Chowdhury A et al., 2008;Barua A et al., 2010; Sandhya GI ,2010)<sup>3</sup>. However, a high prevalence of depressive disorders of 52.2% among elderly  $\geq 60$ years was observed in the study conducted by Nandi PS et al., in rural area of West Bengal. In a systematic review, Barua and Ghosh et al., (2010)<sup>4</sup> reported that the median prevalence rate of depression among the elderly Indian population was determined to be 21.9% (IQR= (11.6%-31.1%).In another systematic review, Beekman and Copeland et al.(1999) reported that the prevalence of depression varied from 2.8%-35% among the elderly population <sup>5</sup>.

An epidemiological study by (Tiwari SC ,2000)<sup>6</sup> from rural Uttar Pradesh showed that psychiatric morbidity in the geriatric group (43.32%) was higher than in the nongeriatric group (4.66%) and most common psychiatric morbidity was neurotic depression followed by manic-depressive psychosis depression, and anxiety state. Psychiatric morbidity was more prevalent in those who were socially, economically, and educationally disadvantaged .Recent community-based studies have reported a prevalence rate of 21.7% to 45.9% (Barua A et al., 2007 and Jain RK et al., 2007) <sup>7</sup>.

## Material & Methods

### 1 Study Design:

A cross – sectional, descriptive study was carried out in villages which were selected randomly. The study was conducted in rural and suburban areas of Varanasi.

### 2. Subjects:

The individuals who were aged 55 years and above were interviewed and examined.

### 3. Study Setting

Study was approved by the Indian ethical committee (IEC) of institute of medical sciences, Banaras Hindu University, Varanasi.

This community study to assess the prevalence of psychiatric disorders, specifically depressive disorders (as per ICD-10), was conducted in rural and suburban areas of Varanasi. Tikari and Sunderpur of Varanasi were chosen as the study areas for rural and suburban population respectively, keeping in mind that they were the rural and urban field practice areas of Department of Community Medicine Institute of Medical Sciences, Banaras Hindu University, which we were able to co-ordinate through study author (TBS) who is affiliated with that department and so facilitated the process further,

Socio-demographic structure of Tikari and Sunderpur are representative of rural and urban slums of Varanasi, respectively and this comparative research would yield useful information which could be of use in further planning and management for psychiatric disorder present in the community.

Good rapport was existing with the people as these are the service areas of Department of Community Medicine, IMS, BHU and so the study was easily feasible.

### 4. Period of the Study

The study was conducted for a period of 19month (January2011to July 2012).The field data collection was carried out once (every Thursday) a week for a period of one year (January 2011 to January2012). Remaining period was utilized for analysis and write up work.

### 5. Sampling Method

**Sample size:** Reliability of the estimates depends largely on the sample size. However resources and time availability for the study also play a very significant role in fixing the sample size. Thus one is forced to make a choice somewhat between the minimum and maximum sample sizes. It was prior decided to screen individuals of 25% of the total households in each of the study areas. Therefore, 200 households in each of the study areas (Tikari and Sunderpur) were selected under this study.

**Sampling procedure:** Each household was the sampling unit. Lists of all the households of Tikari and Sunderpur were obtained from Block Development Office and Municipal Corporation respectively. Every fifth household was selected by systemic random sampling in each of the study area till desired sample size was achieved.

**Selection of respondents:** All the individuals of the selected household who were 55 years and above and

resident of the study area (> 6 months) were included in the study.

### 6. Tool of The Study

- a) Semi structured interview schedule (SSIS)
- b) Modified Kuppuswamy Socioeconomic Status Scale (Kuppuswamy 1981; Mishra, 2003; Kumar 2007)<sup>8</sup>.
- c) 15 Item Geriatric Depression Scale, Hindi version

### 7. Techniques of the Study:

Study subjects were contacted by door to door survey of each household and explained about the purpose of the study. In response to the invitation most of the respondents readily agreed to participate and provide the desired information. Informed consent (Annexure 1) was taken from the subjects after whom they included and interviewed. All the interviews were conducted in privacy, in the respondent's households.

The techniques employed in this study are given below component wise:

#### *Semi structured interview schedule (SSIS)*

Specially developed Semi structured interview schedule incorporating socio demographic details like age, sex, marital status, occupation, literacy status etc. was obtained from respondents was prepared after an initial pretesting. Data for total family income was calculated by interviewing head or any responsible member of the family. If family had more than one income source, all sources were pooled together to get total family income. In addition, the interview schedule detailed medical & psychiatry history and assessment of all subjects.

#### *15 item Geriatric Depression Scale Hindi version (GDS-H-15):-*

The original GDS (Yesavage et al., 1983)<sup>9</sup> was specifically developed for use in the elderly to detect depression. The Hindi version has excellent internal consistency; its factor structure is comparable to that of the original English language version (Sheikh et al., 1991) and explains almost two-thirds of the variance (Ganguli M et al., 1999)<sup>10</sup>.

Instead of the original 30-item form, and the short 15-item form has been used. The original form consists of 30 simple yes or no questions. It is 84% sensitive and 95% specific in differentiating depressed from normal elderly patients. It has been shown to be valid in patients with co morbid medical illness or mild to moderate cognitive impairment, in both inpatient and outpatient settings. The GDS is commonly used as a routine part of a comprehensive geriatric assessment. The GDS questions

are answered "yes" or "no", instead of a five-category response set. This simplicity enables the scale to be used with ill or moderately cognitively impaired individuals.

### Analysis

The data was entered into Microsoft excel software after checking and editing. The analysis was performed using SPSS software 16.0 version. Relative risks (with 95% confidence interval) of possible risk factors were also calculated. Chi square test was used to assess the significant association of depressive disorders with the various sociodemographic variables. Appropriate tables were generated and result were correspondingly presented

### 8. Observation and results

The present study consisted of 200 study subjects of which 96 (48.0%) were male and 104 (52.0%) were female. The data pertaining to them is given below represent combined total study population, Group I represent study population of Tikari village(rural) only, Group II represent study population of Sunderpur (suburban) only.

#### Group

1. The study sample had a preponderance of subjects between 61-70 years of age group (60%).
2. Sex ratio of responders from Group I study population 1000M: 1040F.
3. Male population was 49.0% and female was 51.0%.
4. In age group 61-70 and 71-80, Male and Female were equally distributed (50% in each group).

#### Group 2

1. The study sample had a preponderance (68%) of subject between 61-70 years of age.
2. Sex ratio of responders from Group II study population 1000M: 1130F.
3. In Population group II, males were 47% and females were 53%.

**Table 1 : Prevalence rate of depressive disorders in different age-groups in total study population**

Age group (years)	No. of subjects	Prevalence of Depressive disorders				
		No.	%	RR	CI (95%)	P-value
55-60	22	3	13.6	1.00	-	-
61-70	128	22	17.2	1.79	0.19-1.38	0.03
71-80	35	17	48.6	1.28	0.07-0.84	0.02
>80	15	13	86.7	1.16	0.07-0.43	0.00
Total	200	55	27.5	-	-	-

Comments:

1. The prevalence of depressive disorders was highest in oldest old (>80yrs. age group) as it was present in 86.7% of total individuals.
2. The second most common age group with depressive disorders was (71-80) years where depressive disorder was present in 48.6% of the total individual in that group.
3. The lowest prevalence of depressive disorder was in 55-60 years age group (13.6%)
4. The table shows progressive increase in prevalence rate with increasing age and this finding is statistically significant. Relative risk (taking age group of 55-60 yrs as reference population) and 95% CI for 61-70Yrs 1.79 (0.19-2.38), 71-80yrs 1.28 (0.07-0.84) > 80years 1.16 (0.07-0.43) respectively. (P value 0.03, 0.02, 0.000 respectively for 61-70, 71-80, > 80years age groups).
5. There is clear trend of increase in prevalence of depression from 55 years onwards.

**Table 2 : Prevalence of Depressive Disorder in different Age groups and total study Population Groups**

Age group (years)	Prevalence of Depressive Disorder												
	Population Group I (n=100)						Population Group II (n=100)					Total Population (n=200)	
	Rural						Urban						
	No.	%	RR	CI (95%)	P-value		No.	%	RR	CI (95%)	p-value	No.	%
55-60	2	13.33	1.00	-	-	1	14.28	1.93	0.17-19.06	0.94	3	13.63	
61-70	13	21.66	1.72	0.11-2.75	0.91	9	13.23	1.00	-	-	22	17.18	
71-80	10	55.55	1.24	0.04-0.91	0.03	7	41.17	1.32	0.13-0.87	0.02	17	48.57	
>80	6	85.71	1.16	0.07-0.63	0.005	7	87.50	1.15	0.12-0.36	0.000	13	86.66	
Total	31	31.00	-	-	--	24	24.00	-	-	-	55	27.50	

Comments:

1. The prevalence rate of depressive disorder was highest (87.5%) in age group >80 yrs in Group II population which was also slightly higher compared to Group I (85.7%) population in same age group.
2. Lowest prevalence was noted in 55-60yrs age group with rate of 13.3% in Group I and 14.3% in Group II population. That is as age increases prevalence of depression increases.
3. Second highest prevalence rate was in age group 71-80yrs (55.6%) in Group I and Group II area both.
4. There was a higher proportion of Group I elderly population having depressive disorder compared to their Group II counterpart (31% and 24% respectively).
5. Relative risk for depressive disorder in Group I areas was 1.72, 95% CI (0.11-2.75); 1.24, 95% CI (0.04-0.91) and 1.16, 95% CI (0.07-0.63) for age groups 61-70, 71-80 and >80yrs respectively. In age group 71-80 and >80 the result are statistically significant (p=0.03, p=0.005 age groups 71-80 and >80yrs respectively).

6. The relative risk of depressive disorder in Group II area for age groups 55-60, 71-80 and >80yrs were 1.93, 95%CI (0.17-19.06), 1.32(0.13-0.87) and 1.15, 95% CI (0.12-0.36) respectively. The association was statistically significant for 71-80 (p=0.02) and >80yrs (p=0.000) of age groups and statistically non significant (p value>0.05) for 55-60 yrs.

## DISCUSSION

The present study was an attempt to know the community prevalence of depressive disorders in rural and sub-urban areas from Varanasi district, Uttar Pradesh.

The main aim of the study was to know the prevalence of depressive disorder in study area and to know the possible association of these disorders with socio demographic variables in the study area. Study included all the individuals who represented the selected families of villages under study and were  $\geq 55$  years of age.

The distribution of the depressive disorders was assessed by community based cross sectional approach. The main tool in the study was Geriatric Depression Scale 15 items (Hindi version)<sup>9</sup>. The technique of the study was face to face interview for socio demographic details and subsequently screening was done by using standardized and globally accepted Geriatric Depression Scale 15 (Hindi version). The individuals who tested positive in the screening, were interviewed and assessed in their own household for privacy) on a semi structured PSE-10 part I and finally cases were diagnosed in accordance with the ICD-10 criterion.

Our study figures had higher rate of depressive disorder in rural (31%) population than sub urban (24%). The prevalence rate of depressive disorder was highest (87.5%) in age group >80 yrs in urban population which was also slightly higher compared to rural (85.7%) population in same age group. Lowest prevalence was noted in 55-60yrs age group with rate of 13.3% in rural and 14.3% in urban population. That is as age increases there is a progressive increase in prevalence rate of depression with increasing age and this finding is statistically significant. Relative risk (taking age group of 55-60 yrs as reference population) and 95% CI for 61-70Yrs 1.79 (0.19-2.38), 71-80yrs 1.28 (0.07-0.84) > 80years 1.16 (0.07-0.43) respectively. (P value 0.03, 0.02, 0.000 respectively for 61-70, 71-80, > 80years age

groups).

The effect of urban living had been studied less widely. Mostly, a lower prevalence of depression is found in rural areas. This has been explained by the existence in rural areas of a different style of living, a more stable population, and more close ties in networks, more social support and fewer unfavorable life events<sup>11</sup>. Our study reemphasizes that depression affects rural elderly more in comparison to their urban counterparts. However, a high prevalence of depressive disorders of 52.2% among elderly  $\geq 60$  years was observed in the study conducted by Nandi PS et al., in rural area of West Bengal. This is because due to differences in study populations and evaluation methods. One study from the urban slums of Mumbai reported depression in up to 45.9% elderly (Jain RK et al., 2007)<sup>12</sup>.

Trend that is seen is prevalence is more in elderly aged 55-80 years. It is more till 80 years in rural. This rural semi urban difference ceases above 80 years beyond which semi urban slightly overtakes it. Further there is two fold increase from 55-60 group compared to 65-70 years group.

A big leap is seen in going from sixties to seventies almost witnessing two and half times increase in prevalence. This increase is also seen in semiurban but with an even greater rise (more than 3 times). This transition from sixties to the seventies is the phase where programs for early detection of depressive disorders is urgently needed.

## Conclusions of the study

The overall prevalence of depression in a rural and suburban study area of Varanasi district was 27.5%, higher in women (30.7%) than men (23.9%). Mild depression (11.5%) represented the most common depressive disorder in both rural (14%) and sub-urban (9.0%) population.

Mild depression was more prevalent (73.3%) in oldest old (>80) age as compared to other age groups. Rural population had higher rate of depressive disorder than suburban population

## Implications of this study

This study signifies the need for a team work of physicians with Psychiatrists for better geriatric patient care. There is a clear need to provide mental health services at grass root

level and to integrate them with general health services. There should be some basic training programme for creating awareness in primary physicians and health workers regarding common mental disorders so that mental health services could be implemented effectively at grass root level. There is definite need of intervention by govt. either through District Mental Health Programme and/or other health policy. There is need of further large scale prospective community studies to properly delineate the problem of depressive disorders, a common mental health disorders

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