

# Extent, Pattern and Correlates of Depression in Urban Geriatric Subjects: Findings from Community Based Study

Priya Keshari, Hari Shankar<sup>1</sup>

Department of Home Science, Faculty of Sciences, University of Allahabad, Prayagraj, <sup>1</sup>Department of Community Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India

## Abstract

**Background:** Depression decreases an individual's quality of life and increases dependence on others. The declining physical potential familiar infrastructure and loss of peer may cause anxiety, stress, depression, etc., in geriatric population. **Objectives:** The objectives of this study were as follows: (A) to assess the extent and pattern of depression in study subjects and (B) to find out the correlates of depression in subjects. **Materials and Methods:** This cross-sectional study was conducted on 616 geriatric subjects selected by multistage sampling procedure from urban Varanasi, India. A predesigned, pretested proforma was used for collecting socioeconomic information. Depression status was assessed using the Geriatric Depression Scale. For analysis of data, SPSS version 22.0 was used. Chi-square and logistic regression were used for inferential purpose. **Results:** The overall prevalence of depression in geriatric subjects was 29.7%; 15.7% of subjects were not satisfied with life and 30% often felt helpless. The adjusted odds ratio (95% confidence interval) for depression was 4.54 (2.99–6.09) in subjects >70 years, 4.00 (2.45–6.54) for widowed, 1.95 (1.13–3.35) for widowers, 4.95 (2.02–12.07) for lower, and 3.17 (1.79–5.64) for upper-lower socioeconomic status. **Conclusion:** Nearly one-third of urban geriatric subjects had depression which was significantly enhanced by advancing age, loss of partner, and socioeconomic adversities.

**Keywords:** Depression, geriatric subjects, urban area

## INTRODUCTION

Rapid industrialization, urbanization, and socioeconomic transitions are leading to weakening of Indian family values, family support system, and spiritual comfort which may lead to increased prevalence of depression in geriatric subjects. Among the various mental disorders, depression accounts for the greatest burden among the elderly. It is a disorder that is characterized by sadness, change in appetite, altered sleep patterns, feeling of rejection or helplessness, and sometimes suicidal tendencies. It represents one of the most profound human problems currently facing the global health-care system.<sup>[1,2]</sup> The overall prevalence of mental and behavioral disorders including depression tends to increase with age.<sup>[3]</sup>

In old age, disability arising due to various illnesses, loneliness, lack of family support, restricted personal autonomy, and financial dependency are important contributing factors for higher prevalence of psychosocial abnormality in general and depression in particular. The overall prevalence rate of

depressive disorders among the elderly is estimated to range from one out of ten to four out of ten subjects depending on sociocultural context.<sup>[4-7]</sup> Although previous studies have suggested that factors such as female gender, lower educational attainment, perceived income inadequacy, and major life events are possible risk factors associated with geriatric depression, the strong and relative importance of some or potential factors associated with geriatric depression varied widely with regions and population.<sup>[8,9]</sup>

Early recognition, diagnosis, and initiation of treatment for depression in older people present opportunities for improving their quality of life, preventing suffering or premature

**Address for correspondence:** Dr. Priya Keshari, N 10/60, GS Shyama Nagar Colony, Kakarmatta, Varanasi - 221 004, Uttar Pradesh, India.  
E-mail: priya.bhu2010@gmail.com

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death, and maintaining optimum levels of functions and independence. A higher number of older people who have spent most of their life with their joint/extended family may face loneliness and marginalization in their old age. Financial security in old age has a significant influence on their physical, mental, and psychosocial well-being. The declining physical potential, familiar infrastructure, and loss of peer may cause anxiety, stress, depression, etc., in geriatric population.

Overall summative status of depression does not provide specific area of concern and input, therefore, segregate analysis of pattern of depression is desired for meaningful actions. Giving due consideration to existing gaps in ascertainment of extent and pattern of depression in urban geriatric population and recognizing the importance of correlates for focused planning and execution of preventing and therapeutic measures, this study was undertaken to assess the extent, pattern and correlates of depression in geriatric subjects.

## MATERIALS AND METHODS

### Study design and participants

This community based cross-sectional study was conducted in wards of urban Varanasi, India. As per Census 2011, the total population of Varanasi district was 3,682,194 and 43.4% of subjects were from urban Varanasi. The geriatric population constituted 7% of the total population. Urban geriatric subjects having age  $\geq 60$  years were taken as study subjects.

### Sample size and selection of subjects

Taking overall prevalence of depression in urban geriatric subjects as 40%, 5% permissible error (absolute), design effect of 1.5, and nonresponse rate 10% estimated sample size, the final sample size became 616.<sup>[6]</sup> Selection of subjects was done through multistage sampling procedure. From 90 census enumeration wards, 9 wards were selected by simple random sampling. From the selected census enumeration wards, households were selected according to probability proportion to size adopting systematic random sampling method. This was followed by family and selection of subjects by lottery method. Subjects who gave their consent for the study were included in the study, whereas subjects with terminal illness or having serious mental abnormality and duration of stay in the study area  $< 6$  months were not considered in the sampling frame. Therefore, they were excluded from the study.

### Ethical clearance

Ethical clearance was taken from the Ethical Committee of Banaras Hindu University, India, and consent was obtained from participants using bilingual (Hindi and English versions) consent form.

### Tools and techniques

Each study subject was administrated a predesigned and pretested proforma to obtain information about sociodemographic characteristics (viz., age, gender, material status, religion, caste, educational status, occupation; type

of family, and total number of family members). Subjects were categorized into upper, upper-middle, lower-middle, upper-lower, and lower classes as per Kuppaswamy classification.<sup>[10]</sup> Pattern and status of depression in geriatric subjects were assessed by interviewing them using the Geriatric Depression Scale.<sup>[11]</sup> This scale comprises 15 items (yes/no format). Of the 15 items, 10 indicate the presence of depression when answered positively while the other 5 are indicative of depression when answered negatively. On the basis of scores, subjects were categorized as normal (0–4), mild (5–8), moderate (9–11), and severe (12–15) depressed. The data were analyzed using SPSS software (SPSS version 22.0 IBM Corp., Armonk, NY, USA). Descriptive statistics were used to present categorical data. Univariate analysis was performed for associates of depression. In order to pinpoint the correlates of depression, logistic regression analysis was done.

## RESULTS

Of 616 subjects, 70.3% were normal whereas 19.6%, 8.1%, and 1.9% had mild, moderate, and severe depression, respectively. In all, 183 (29.7%) subjects were with depression, of which 66.1%, 27.3%, and 6.6% had mild, moderate, and severe depression, respectively. Pattern of depression was as shown in Table 1.

Distribution of select demographic and socioeconomic variables is as shown in Table 2. Age, marital status, education and socioeconomic class were significantly associated with depression. There existed no significant ( $P > 0.05$ ) association of depression with gender, religion, caste, occupation, type, and size of family of subjects.

Logistic regression analysis identified age, marital status, and SES as significant correlates of depression in geriatric subjects. When the age group of 60–69 years was taken as reference, the adjusted odds ratio (AOR) for depression for subjects  $\geq 70$  years was 4.54 (95% confidence interval [CI]: 2.99–6.09). Considering

**Table 1: Pattern of depression of study subjects (n=616)**

Depression	Response	Frequency, n (%)
Satisfied with life	No	97 (15.7)
Dropped activities	Yes	200 (32.5)
Feel life is empty	Yes	169 (27.4)
Often get bored	Yes	148 (24.0)
Good spirit most of the time	No	105 (17.0)
Afraid bad going happen	Yes	53 (8.6)
Feel happy	No	106 (17.2)
Often feel helpless	Yes	185 (30.0)
Prefer to stay home	Yes	193 (31.3)
Problems with memory	Yes	93 (15.1)
Wonderful alive now	No	96 (15.6)
Pretty worthless now	No	136 (22.1)
Full of energy	No	218 (35.4)
Situation hopeless	Yes	74 (12.0)
People better than the subjects	Yes	156 (25.3)

married subjects as reference, AORs for depression for widower and widowed subjects were 1.94 (95% CI: 1.13–3.35) and 4.00 (95% CI: 2.45–6.54), respectively. In comparison to subjects having SES status as upper and upper middle, significantly higher ( $P < 0.01$ ) AORs for depression were observed for subjects belonging to lower (AOR: 4.94; 95% CI: 2.02–12.07) and upper-lower classes (AOR: 3.17; 95% CI: 1.79–5.64). The significant influence of literacy status on depression in univariate analysis got eliminated in the logistic model. In case of literate + just literate and primary + middle educated subjects, AOR was 1.03 (95% CI: 0.56–1.92) and 1.81 (95% CI: 0.96–3.42), respectively [Table 3].

## DISCUSSION

Depression itself refers to a heterogeneous set of phenomena ranging from simple mood swings to severe affective state. According to this study, one out of three subjects had depression. Similar findings have been observed in meta-analysis of 81 published articles on depressive symptoms in older Chinese adults<sup>[12]</sup> as well as in studies from South,<sup>[13]</sup> North,<sup>[14]</sup> and West<sup>[15]</sup> India. Pattern of depression revealed through this study reflects that depression in geriatric subjects is cause of serious concern. It provides action points for their psychosocial well-being. In order to find out the correlates of

**Table 2: Association of demographic and socioeconomic variables with depression**

Particulars (616)	Depression status				Test of significance
	Normal, n (%)	Mild, n (%)	Moderate/severe, n (%)	Total, n (%)	
Age (years)					
60-69	321 (81.9)	62 (15.8)	9 (2.3)	392 (100)	$\chi^2$ : 17.52
70-79	107 (61.8)	41 (23.7)	25 (14.5)	173 (100)	df: 4
>80	5 (9.8)	18 (35.3)	28 (54.9)	51 (100)	$P < 0.01$
Marital status					
Married	320 (80.4)	56 (14.1)	22 (5.5)	398 (100)	$\chi^2$ : 71.27
Widower	57 (62.6)	25 (27.5)	9 (9.9)	91 (100)	df: 4
Widowed	56 (44.1)	40 (31.5)	31 (24.4)	127 (100)	$P < 0.01$
Education					
Illiterate + just literate	207 (66.6)	62 (19.9)	42 (13.5)	311 (100)	$\chi^2$ : 23.60
Primary + middle	106 (66.2)	43 (26.9)	11 (6.9)	160 (100)	df: 6
High school + intermediate	63 (77.8)	12 (14.8)	6 (7.4)	81 (100)	$P < 0.01$
Graduate and above	57 (89.1)	4 (6.2)	3 (4.7)	64 (100)	
Socioeconomic class					
Upper class	35 (83.3)	2 (4.8)	5 (11.9)	42 (100)	$\chi^2$ : 42.50
Upper middle	124 (79.5)	23 (14.7)	9 (5.8)	156 (100)	df: 8
Lower middle	123 (76.9)	31 (19.4)	6 (3.8)	160 (100)	$P < 0.01$
Upper lower	129 (59.4)	56 (25.8)	32 (14.7)	217 (100)	
Lower class	22 (53.7)	9 (22.0)	10 (24.4)	41 (100)	

**Table 3: Correlates of depression in geriatric subjects**

Particulars	Estimate of $\beta$	SE of $\beta$	P	AOR	95% CI (lower-upper)
Age (years)					
$\geq 70$	1.51	0.21	0.000	4.54	2.99-6.09
60-69 (reference)	-	-	-	-	-
Marital status					
Widower	0.67	0.28	0.017	1.95	1.13-3.35
Widowed	1.39	0.25	0.000	4.00	2.45-6.54
Married (reference)	-	-	-	-	-
Educational status					
Illiterate + just literate	0.03	0.32	0.918	1.03	0.56-1.92
Primary + middle	0.59	0.32	0.066	1.81	0.96-3.42
High school and above (reference)	-	-	-	-	-
Kuppuswamy SES					
Lower	1.60	0.46	0.000	4.94	2.02-12.07
Upper lower	1.16	0.29	0.000	3.17	1.79-5.64
Lower middle	0.15	0.30	0.617	1.16	0.64-2.16
Upper + upper middle (reference)	-	-	-	-	-

AOR: Adjusted odds ratio, CI: Confidence interval, SE: Standard error, SES: Socioeconomic status

depression, factors significantly associated with depression were identified and significant factors from association analysis were put in the logistic model. Nearly 8 out of 10 subjects in the age group of 60–69 years were without depression whereas depression prevailed in approximately 4 out of 10 subjects from 70 to 79 years and 9 out of 10 subjects >80 years of age. In conformity with the findings of this study, several workers have reported a significant association between age and depression.<sup>[13,16]</sup> In this study, age emerged as a significant correlate of depression in the logistic model as well. Influence of gender, religion and type as well as size of family of study subjects with their depression level was not significant.

Two out of ten married subjects were without depression. Higher prevalence of depression prevailed in widower (7 out of 20) and widowed subjects (11 out of 20). This may be attributed to the absence of close interpersonal relationship due to death of the spouse which renders them vulnerable to stress and causes major depression disorder. This finding has been supported by other studies as well.<sup>[13,15,17]</sup> This study pinpoints that subjects without spouse had higher adjusted odds for depression. In conformity with the present study, lower level of education has been found to be associated with depression in several other studies as well.<sup>[13,17,18]</sup> A study has identified literacy status as a predictor of depression in logistic model.<sup>[17]</sup> However, in the present study, a significant association between depression and literacy status could not be demonstrated in logistic model.

Most of the people who are entering in geriatric age group have no old-age financial planning. Higher prevalence of depression in poor economic status has been reported by a study from Visakhapatnam<sup>[13]</sup> and among the elderly living in the urban poor locality in Bangalore city.<sup>[19]</sup> As observed in this study, higher AORs in subjects belonging to lower and upper-lower SES categories have been reported in another study as well.<sup>[20]</sup> This study provides significant inputs for prioritization of action for psychosocial well-being of geriatric subjects.

## CONCLUSION

Advancing age, loss of partner, and socioeconomic adversities predisposed urban geriatric subjects to depression. These findings call for targeted attention for curbing depression in urban geriatric subjects. Familial support and economic security are critical inputs for psychosocial well-being of geriatric subjects.

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## Conflicts of interest

There are no conflicts of interest.

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