

## Socio-demographic Predictors of Depression among the Elderly Patients Attending Out Patient Departments of a Tertiary Hospital in North India

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Date of Submission: Sep 12, 2011

Date of Acceptance: Mar 30, 2012

**How to cite this article:** Akhtar H, Khan AM, Vaidhyanathan KV, Chhabra P, Kannan AT. Socio-demographic predictors of depression among the elderly patients attending out patient departments of a tertiary hospital in north india. Int J Prev Med 2013;4:971-5

### ABSTRACT

**Background:** Depression is the most common geriatric psychiatric disorder. Other than organic, socio-demographic factors, have been found to play an important role in mental health. In this study we evaluated the association of some socio-demographic factors with geriatric depression

**Methods:** A cross-sectional study was carried out in the Out Patient Department registration area of a tertiary care teaching hospital in Delhi. Questionnaire based interviews were conducted among the elderly people visiting the hospital. A 15-item geriatric depression scale-Hindi was used to assess depression.

**Results:** Six hundred and seventy eight subjects were interviewed. The age of the subjects ranged from 65 to 85 years. About three-fourth of the study population were males. About 61.4% scored positive for depression. Multiple logistic regression analysis revealed that the following were significant ( $P < 0.05$ ) independent predictors of depression: Higher age, low educational status, financial dependence and presence of any chronic health problem.

**Conclusions:** The present study found that the prevalence of depression among the study subjects was high. Also the independent risk factors found in this study need to be targeted in formulating mental health policy for geriatrics.

**Keywords:** Depression, geriatric, geriatric depression scale, socio-demographic factors

### INTRODUCTION

As per world population project the proportion of elderly is going to increase from current 7% to 11% in 2025 and about 20% in 2050 with an estimated number to be 315 million.<sup>[1]</sup> Depression is the most common psychiatric disorder among the elderly which can manifest as major depression or as minor depression characterized by a collection of depressive symptoms.<sup>[2]</sup> The prevalence of depression in elderly in India is rising as reported by many community as well as hospital based studies which vary from 6% to 50%.<sup>[3]</sup>

This study was carried out to find out the prevalence and associated socio-demographic variables of depression among elderly ( $\geq 60$  years) in the Out Patient Department (OPD)

registration area of a tertiary care hospital in North-East Delhi.

## METHODS

This cross-sectional study was conducted among elderly subjects visiting the Guru Teg Bahadur Hospital, an approximately 1200+ bedded tertiary care hospital situated in the North East district of Delhi. The study period was from 1<sup>st</sup> January to 31<sup>st</sup> January 2010.

Taking the prevalence of Depression among elderly ( $\geq 60$  years) to be 40%, permissible relative error as 10% and an expected non-response rate of 10%, the sample size was calculated to be 660. Subjects were selected by convenience sampling. Those seriously ill or not able to fill the questionnaire were excluded from the study. The objectives of the study and the right to withdraw at any time were explained to the participants and verbal consent was taken.

### Data collection tool

The data collection instrument consisted of two parts. The first part comprised of socio-demographic information covering a diverse set of parameters namely age, sex, marital status, education, caregivers, employment status, financial dependence and the type of family system the subject was currently residing in. The second part was a prevalidated Hindi version of the geriatric depression scale (GDS-H) was used.<sup>[4]</sup> Depression was considered present when the score on the GDS-15 was 5 points or more. GDS-15 has a sensitivity of 85% and specificity of 75%.<sup>[5]</sup>

### Statistical analysis

The data was analyzed using SPSS 16.0. Univariate statistical comparison of variables was done between the depressed and non-depressed group. A stepwise multiple logistic regression analysis was applied to determine independent predictors of depression in the elderly subjects. Type I error was fixed at 0.05.

## RESULTS

Seven hundred forty potential subjects were approached in a consecutive manner with the request for participation in the study. Six hundred and ninety subjects agreed to participate, giving a response rate of 93.24%, the majority (86%) of

the non-responders being females. Twelve subjects did not complete the interview due to lack of time. In the end 678 subjects were included in the final analysis.

Majority of the study subjects were in the age group of 60-65 years with a mean age of 65.13 ( $\pm 4.92$ ) years. Out of all the study subjects 75.4% were males and 82.4% were currently married. About two-fifths of the study subjects were illiterate. A large proportion (64.7%) of the elderly was either unemployed or retired and very few (2.3%) were living alone. However, 4.7% had no caregiver present.

Out of 678 study subjects 61.4% (95% CI: 57.6-65.1%) were screened positive for depression. Table 1 shows the frequency of various items included in the GDS-15 scale. Table 2 shows the percentage of depressed subjects according to various socio-demographic variables and univariate comparison of socio-demographic variables between the depressed and non-depressed groups.

The variables like age, gender, marital status, education, current employment status, per capita income, pattern of financial support, any chronic health problem and presence or absence of caregiver were subjected to multiple logistic regression analysis. Multiple logistic regression analysis showed that higher age, low educational status, financial dependence and having any chronic health problems were significantly independent predictors of depression in our study subjects.

## DISCUSSION

The mental health of the older population is usually a neglected domain in our country. As such, the older persons are forced to spend their last years of life with a very poor quality of life. Our study reported a high (61.4%) prevalence of depression among the study subjects. Previous Indian community-based data are limited and widely disparate, most likely reflecting non-uniform methodology. Similarly a rural community based study in Ballabgarh in Northern India revealed the prevalence of depression among population aged 55 and above to be 40%.<sup>[4]</sup> This comparatively higher prevalence of depression in present study may be due to the fact that, it is a hospital based study and the sample consisted of patients in the OPD registration area. It is known that people with

**Table 1:** Frequency of GDS-15 items in the study subjects (N=678), rank-ordered

Depressive symptoms (GDS-15 items)		Frequency of positive responses (%)
Q4	Do you prefer to stay at home, rather than going out and doing new things?	440 (64.90)
Q12	Do you feel you have more problems with memory than most?	410 (60.4)
Q9	Do you often get bored?	375 (55.3)
Q14	Do you think that most people are better off than you are?	336 (49.60)
Q2	Have you dropped many of your activities and interests?	323 (49.3)
Q7	Do you feel full of energy?	288 (42.5)
Q13	Do you feel that your situation is hopeless?	269 (39.7)
Q8	Do you feel that your life is empty?	250 (36.9)
Q11	Do you often feel helpless?	220 (32.4)
Q3	Do you feel happy most of the time?	203 (29.9)
15	Do you feel pretty worthless the way you are now?	191 (28.2)
Q5	Are you in good spirits most of the time?	178 (26.3)
Q10	Are you afraid that something bad is going to happen to you?	169 (24.9)
Q6	Do you think it is wonderful to be alive now?	164 (24.2)
Q1	Are you basically satisfied with your life?	126 (18.6)

Of the 15 items, 10 indicated the presence of depression when answered positively, while the rest (Question numbers 1, 3, 5, 6, 7) indicated depression when answered negatively

co-morbid conditions are more likely to suffer from depression.<sup>[6]</sup>

Increase in age in the later life is significantly associated with an increased risk of depression. Old age is associated with various physical disabilities which lead to dependency on others for daily activities, which may be a reason for depression in elderly. Other studies have also reported similar findings.<sup>[7]</sup>

In our study, a low level of education was directly associated with depression in the elderly subjects. Many studies have reported this finding including studies in developing countries.<sup>[8,9]</sup> The educated elderly can easily adjust with the situation as compared to illiterates and therefore are at a lesser risk for depression. Elderly dependent on children, pension, charity or other family members for financial support were at higher risk (AOR=1.75, 95% CI=1.10-2.81) for depression than those who were self-dependent. Lower income and financial dependency on others for fulfillment of daily needs as well as health care expenses of a person in late life produces depressive symptoms which substantiate the findings from other authors.<sup>[7]</sup>

This study shows that presence of any chronic health problem increases the risk of depression by 1.43 times (95% CI=1.01-2.02). This corroborates with the findings of previous studies that many chronic somatic diseases like pain, diabetes, hypertension, respiratory diseases etc. are associated with not only depression but long term recurrence

of depression.<sup>[6]</sup> Absence of care giver was found to be strongly associated with depression in elderly (AOR=5.68, 95% CI=1.85-17.40). Previous studies and reviews have also mentioned that negligence by the family members, lack of affection and care at the later stage of life is the most important factor for depression among elderly.<sup>[10]</sup>

Though females were having higher prevalence of depression, the association was not statistically significant, which is in contrast to several other studies and reviews that have shown a significant relationship of female sex with the depression.<sup>[6]</sup> This may be due to lower representation of women in our study.

### Limitations

Studies have shown that the psychometric properties of the GDS are weaker when used on people with cognitive impairment.<sup>[5]</sup> Screening for people with cognitive impairment was not done in our study. Since this was a hospital based study and the study subjects were patients coming to the hospital generalizability of our results may be restricted.

### CONCLUSION

The burden of depression among elderly patients is quite high and hence the risk factors found in this study should merit attention by the consulting physician.

**Table 2:** Univariate analysis of various socio-demographic variables associated with depression in the study subjects

Variables	Depressed N (%)	Unadjusted OR	95% CI	P value
Gender				
Male	307 (60.1)	1		
Female	109 (65.3)	1.24	0.86-1.83	0.23
Age (years)				
60-65	186 (52.8)	1		
65-70	132 (67.0)	1.81	1.24-2.65	
71-75	75 (75.0)	2.46	1.59-4.60	<0.001*
>75	23 (79.3)	3.23	1.31-10.50	
Marital status				
Married	325 (58.1)	1		
Unmarried/widower/separated	91 (76.5)	2.34	1.48-3.69	<0.001*
Educational status				
High school or above	91 (45.7)	1		
Primary/middle/secondary	134 (65.4)	2.24	1.50-3.34	
Illiterate	191 (69.7)	2.73	1.87-3.99	<0.001*
Current employment status				
Employed/businessman	118 (49.4)	1		
Unemployed/retired	298 (67.9)	2.16	1.57-2.99	<0.001*
Type of family				
Joint/extended	264 (60.1)	1		
Nuclear	152 (63.6)	1.16	0.66-2.05	0.376
Per capita income (INR)				
>5000	28 (42.2)	1		
2000-5000	122 (54.7)	1.64	0.94-2.86	<0.001*
<2000	266 (68.4)	2.93	1.72-5.0	
Pattern of financial support				
Self-dependent	150 (49.5)	1		
Dependent on children or others	266 (70.9)	2.49	1.81-3.42	<0.001*
Any chronic health problem				
No	197 (56.4)	1		
Yes	219 (66.6)	1.54	1.12-2.10	0.006*
Caregiver present				
Yes	388 (60.1)	1		
No	28 (87.5)	4.65	1.61-13.43	0.002*

\*Significant at  $P < 0.05$ ; INR: Indian National Rupee

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**Source of Support:** Nil **Conflict of Interest:** None declared.