



Assessment of Risk Factors and Prevalence of Depression among Elderly Subjects in a Rural Community

Anshuman Sharma¹, Sanjeev Kumar Gupta², Agrawal S Sanjay³, Gupta Sanjay⁴, Sarouthia Shalini⁵

Financial Support: None declared

Conflict of Interest: None declared

Copy Right: The Journal retains the copyrights of this article. However, reproduction is permissible with due acknowledgement of the source.

How to cite this article:

Sharma A, Gupta SK, Sanjay AS, Gupta Sanjay G, Shalini S. Assessment of Risk Factors and Prevalence of Depression among Elderly Subjects in a Rural Community. *Natl J Community Med* 2018; 9(4): 283-287

Author's Affiliation:

¹Former Assistant Prof; ²Associate Prof., Dept of Community Medicine, RKDF Medical College and RC, Bhopal; ³Professor & Head, Dept of Community Medicine, R D Gardi Medical College, Ujjain; ⁴Former Professor, Dept of Community Medicine, Peoples College of Medical Science, Bhopal; ⁵Tutor, Dept of Community Medicine, RKDF Medical College and RC, Bhopal

Correspondence

Dr. Sanjeev Kumar Gupta
drsanjeev15@gmail.com

Date of Submission: 23-03-18

Date of Acceptance: 12-04-18

Date of Publication: 30-04-18

ABSTRACT

Background: In the current scenario, worldwide there is increase in geriatric population in the society, among whom mental health is an imperative and neglected public health problem. World health Organization (WHO) state that some of the factors responsible for depression in age > 60 years include chronic degenerative diseases & disability, pain, fear, frustration, restriction of day to day activity, personality traits and genetic susceptibility.

Objective: The objective of current study is to assess the prevalence of depression and identify associated risk factors for depression in the geriatric rural population.

Material and Methods: It was a cross sectional study conducted in a rural community adjoining the Rural Health and Training Centre, comprising of 400 participants. The instrument employed to appraise the participants was World Health Organization Disability Assessment Scale II; following which statistical analysis was done by using chi square test of significance.

Results: Of 400 participants interviewed, average age of the participants was 72.7 years. Prevalence of any episode of depression was 14%. Past history of depression was found in only 6% cases; while mild cognitive impairment was observed in 12% cases. Mean WHODAS score was 27.92 ± 13.7 . Significant differences were observed in relation to their marital status, religion, type of family and socioeconomic status.

Conclusion: We conclude that old age is associated with depression which necessitates it to be accurately and timely diagnosed ensuring proper care and support to elderly population with emphasis on geriatrics mental health care.

Keywords: Depression, Elderly, Rural, Aging, Mental health, India

INTRODUCTION

In past few decades India has shown a decline in birth rate, indicating improved life expectancy with decreased mortality. Consequent to improved health care system across the country, there is increase in Geriatrics population.

Worldwide geriatrics population has shown an increasing trend since past two decades i.e. 1990 to 2013; which is predicted to reach more than two billion in 2050 ¹. Aging is a natural process associ-

ated with multiple physiological, biological and mental changes where body is more prone to develop multiple co-existing medical and psychological disorders commonly such as cardiovascular problems, respiratory disorders, hearing and visual impairments, depression, and infections. From pre-independence era to current scenario especially in rural part of our country, there has been lots of social and cultural shift from joint families with care giving attitude to their elders to now nuclear family system ignoring the elderly ².

Majority cases of depression are found in 1% to 3% of general elderly population and an additional 8% to 16% have clinically significant depressive symptoms³⁻⁵. The prognosis of these depressive states is pitiable. In the elderly people, depression is related to morbidity and disability⁴⁶. This constitutes a major public health problem worldwide.

Along with physiological and psychological changes associated with aging, alteration in associated risk factors also modify the prevalence and prognosis of geriatric depression⁷. Medical comorbidity and cognitive impairment have a complex bidirectional relationship with geriatric depression^{8,9}.

Meta-analysis of outcomes at 24 months, estimated that only 33% of subjects were well, 33% were depressed, and 21% had died¹⁰. Moreover, studies of depressed adults^{11,12} indicate that those with depressive symptoms, with or without depressive disorder, have inferior functioning, akin to or worse than that of people with chronic medical conditions such as heart and lung disease, arthritis, hypertension, and diabetes¹³. In addition to mediocre functioning, depression increases the perception of poor health¹³, the utilization of medical services¹⁴, and health care costs¹⁵.

The preceding findings suggest that depression in elderly community subjects is a serious problem. Nonetheless, possibly fewer than 20% of cases are detected or treated^{4,10}. Even among those detected and treated, the effectiveness of interventions appears to be reticent¹⁶.

Escalating health care costs and shrinking health care resources challenge health care professionals to find more effective and less expensive approaches and advancements to treat depression in the elderly.

Thus, the purpose of this investigation was to determine risk factors and prevalence of depression among elderly subjects in the rural community.

METHODOLOGY

A cross-sectional study was conducted to examine the nature and prevalence of geriatric depression in a rural community. Factors associated with geriatric depressions were assessed.

Setting: Study was conducted in the area catered by Rural Health and Training Centre, PCMS & RC Bhopal (MP). The Department of Community medicine of the college has been conducting community health programs in this area. The community health workers, who live within the various village communities, provided the detailed statis-

tics. They were supervised by public health nurses and physicians.

Recruitment of participants: Study participants were identified using a computerized list and a door-to-door survey. All elderly people over 65 years of age were invited to participate in this study. Elderly people who did not give their consent and those with communication difficulties due to reasons of hearing loss or language barrier were excluded from the study. Written informed consent was taken from the study participants before including them in the study.

The sample size for the current study was calculated by using the formula $N=4PQ/L*L$ at 95% confidence interval, with an allowable error of 10%. Former studies suggest that prevalence of depression among geriatrics varies from 6% to 58%. Hence in current study, based on prevalence of 50%, sample size of 400 was calculated.

Assessment: The instrument employed to appraise the participants was the, World Health Organization Disability Assessment Scale II (WHODAS II; World Health Organization, 2001)⁽¹⁵⁾. A structured proforma was designed & pretested to assess socio-demographic characteristics, medical history and anthropometry of participants. In an attempt to minimize recall bias, a detailed and structured interview was conducted by other health workers from the community.

Data analysis: Under the descriptive statistics, we initially analyzed the socio-demographic data, medical history, psychopathology, cognitive profile and the disability status. .

Based on WHODAS score, psychiatric diagnoses was reached. Data was compiled using MS Office Excel 2007 and statistical analysis was done using software package SPSS 20.0. Results were reported as frequencies, means \pm standard deviations (SD) and *P* values. The Chi-square test was used for categorical variables. A *P* value of < 0.05 was taken as the criteria of significance.

RESULTS

In current study, 449 participants were identified; of which 49 participants were lost due to various reasons; thus having 400 participants with an overall response rate of 89% and prevalence of any episode of depression in our sample was 14%.

In current study nearly two third of the participants were women, most of them illiterate or had completed education up to primary level i.e. 68% and these were from the low-income category. The average age of the participants was 72.7 (SD 8.2) years. (Table-1, Table-2)

Table 1 Socio-demographic and psychosocial profiles of the participants. (N=400)

Characteristics	Number (Percentage)
Gender	
Male	128 (32)
Female	272 (68)
Education	
Illiterate	172 (43)
Primary	100 (25)
Secondary	64 (16)
High school	36 (9)
Graduate	28 (7)
Occupation	
Agriculture	256 (64)
Others	144 (36)
Marital status	
Married	368 (92)
Unmarried	4 (1)
Widow	28 (7)
Socio economic status	
Lower middle and above	209 (52.25)
Upper lower and below	191 (47.75)
Employment status	
Employed	173 (43.25)
Unemployed	227 (56.75)

Table -1A: Bio characteristic of study participants with other different factors

Variables	Frequency (%)
Religion	
Hindu	72 (18)
Non Hindu	328 (82)
Type of family	
Nuclear	19 (4.75)
Joint	381 (95.25)
Addiction	
Smokers	204 (51)
Alcohol	88 (22)
Others	108 (27)
Past history of depression	
Present	24 (6)
Absent	376 (94)
Cognitive impairment	
Mild	48 (12)
Normal	352 (88)

Table-2: Relation of different variable with statistical co-matrix

Variables	Mean	SD*
Age in years	72.76	8.27
Monthly family income (Rs)	3500	127.3
WHODAS score	27.12	13.7

* Standard deviation

Our study had male: female ratio of 1:2.1. Most of the participants were illiterate (43%) followed by primary educated (25%). 64% were farmer by occupation, and were residence of rural area where agriculture is practiced. Marital status of study participants shows that 92% were married while only 1% was unmarried and 7% were widowed.

On scrutiny of the habit of addiction among the participants, prevalence of smoking was 51% and alcohol consumption was 22%. Past history of depression was found in only 6% cases; while mild cognitive impairment was observed in 12% cases. Mean WHODAS score was 27.92 ± 13.7 . (Table-1, Table-2)

As per there socioeconomic status (SES) nearly half of them belongs to lower middle and above socio-economic status and 56% of rural elderly had quandary of unemployment.

Religion wise distribution of the participants showed that only 18% were Hindu whilst rest of them were from other religion; and by and large 95% followed traditional joint culture of family with only 4.75% had adopted nuclear family norms. (Table-1A)

Gender, income/employment status, education, cognitive impairment, smoking and alcohol dependence were not found to be significantly ($P > .05$) associated with depression although WHODAS score more than 25 defining moderate and severe disability was significantly associated with presence of geriatric depression ($P < 0.005$) (Table-3).

In relation to marital status, there were statistically significant difference observed of $P < 0.005$, in accordance to their religion, type of family and socio-economic status. (Table-3)

DISCUSSION

This study examined the complex factors associated with depression among the elderly in a rural community.

Female participants, advancing age and cognitive impairment were not associated with geriatric depression. Depressive disorders indicated more functional disability in this population. Similar result and association of WHODAS score with depression was also seen in previously conducted study by Rajkumar et al¹⁸

Its limitation was its cross-sectional design. Contrary to other studies, advancing age, occupation and education were not significantly correlated with geriatric depression (Cole and Dendukuri, 2003; Osborn et al., 2003; Sherina et al., 2004; Tsai et al., 2005; Chiet al., 2005; Khattri and Nepal, 2006; Jain and Aras, 2007; Kaneko et al., 2007)^{6,19-25}.

The paltry expectations by families of their elderly relatives may also contribute towards high tolerance of depressive symptoms and functional impairment (Jacob et al., 2007b)²⁶.

Distressed elderly people showed depressive

Table 3- Association of different characteristics with depression

Characteristics	Depression		P value
	Absent (%)	Present (%)	
Gender			
Female	236 (68.6)	36 (64.3)	0.521
Male	108 (31.4)	20 (35.7)	
Marital status			
Married	289 (78.53)	79 (21.46)	0.000
Unmarried & widows	14 (43.75)	18 (56.25)	
Education			
Graduate	24 (7)	4 (7.1)	0.062
High school	36 (10.5)	0 (0)	
Illiterate	148 (43)	24 (42.9)	
Primary	80 (23.3)	20 (35.7)	
Secondary	56 (16.3)	8 (14.3)	
Cognitive impairment			
Mild	44 (12.8)	4 (7.1)	0.228
Normal	300 (87.2)	52 (92.9)	
WHODAS score			
Less than 25	288 (83.7)	32 (57.1)	0.001
More than 25	56 (16.3)	24 (42.9)	
Alcohol use			
Absent	264 (76.7)	48 (85.7)	0.133
Present	80 (23.3)	8 (14.3)	
Smoker			
Absent	160 (46.5)	36 (64.3)	0.014
Present	184 (53.5)	20 (35.7)	
Religion			
Hindu	43 (59.72)	29 (14.5)	0.005
Non Hindu	136 (41.46)	192 (58.53)	
Type of family			
Nuclear	13 (68.42)	6 (31.57)	0.697
Joint	244 (64)	137 (35.95)	
Socio-economic status			
Lower middle & above	108 (51.67)	101 (48.32)	0.000
Upper lower & below	156 (81.67)	35 (18.32)	
Employment status			
Employed	102 (58.95)	71 (41)	0.711
Unemployed	138 (60.79)	89 (39.2)	

symptoms such as illness or worry about implication of symptoms. Traumatic life events, psychosocial problems and inability to protract such problems may also cause elderly to be trapped in depression. Consequently, the difficulty in separating distress from depression becomes a major issue (Heath, 1999). Despite the fact that psychiatrists suggest that brief screening instruments can easily identify people with depression (Kessler et al., 1999)²⁸, most general practitioners (GPs) would argue that many of those identified are distressed (Heath, 1999)²⁷.

The relationship between poverty, social isolation, physical health and mental health is complex (Kuruvilla and Jacob, 2007)²⁹. However, the cross-sectional and observational nature of this study mandates the need for cohort designs to confirm associations and randomized trials to assess intervention.

CONCLUSION

According to this study we conclude that old age is associated with depression which necessitates it to be accurately timely diagnosed ensuring proper care and support to elderly population. Socioeconomic factors are accountable to some extent however disability is the leading cause of depression amongst elderly as observed by WHODAS scores. This score is additionally useful in studying mental health status among elderly with disability.

The study findings accentuate and lay emphasis on the need for a comprehensive interventional study to bring about ways and means to improve mental health including depression in elderly population such that it makes obligatory for policy makers to include some interventions in formulating effective mental health promotion activities, including awareness among the family members to seek early diagnosis, and timely care, support, counseling and treatment for their elders so that to prevent drastic ramification of geriatric depression.

REFERENCES

1. United Nations. Economic and Social Affairs World Population Ageing 2013. New York: United Nations; 2013. Available from: <http://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2013.pdf>. [Last accessed on 2018 Mar 19].
2. Barua A, Kar N. Screening for depression in elderly Indian population. *Indian J Psychiatry* 2010;52:150-3.
3. NIH Consensus Development Conference: Diagnosis and treatment of depression of late life. *JAMA* 1992; 268:1018-1029
4. Cole MG, Yaffe MJ: Pathway to psychiatric care of the elderly with depression. *Int J Geriatr Psychiatry* 1996; 11:157-161
5. Blazer D: Depression in the elderly. *N Engl J Med* 1989; 320: 164-166
6. Cole, M. G. and Dendukuri, N. (2003) Risk factors for depression among elderly community subjects: a systematic review and meta-analysis. *American Journal of Psychiatry*, 160, 1147-1156
7. van't Veer-Tazelaar, P. J. et al. (2008). Depression in old age (75+): the PIKO study. *Journal of Affective Disorders*, 106, 295-299
8. Jongenelis, K., Pot, A. M., Eisses, A. M., Beekman, A. T., Kluiters, H. and Ribbe, M.W. (2004). Prevalence and risk indicators of depression in elderly nursing home patients: the AGED study. *Journal of Affective Disorders*, 83, 135-142.
9. Steffens, D. C. and Potter, G.G. Geriatric depression and cognitive impairment. *Psychological Medicine*, 2008, 38, 163-175.
10. Cole MG, Bellavance F, Mansour A: Prognosis of depression in elderly community and primary care populations: a systematic review and meta-analysis. *Am J Psychiatry* 1999; 156:1182- 1189
11. Gurland BJ, Wilkder DE, Berkman C: Depression and disability in the elderly: reciprocal relations and changes with age. *Int J Geriatr Psychiatry* 1988; 3:163-179

12. von Korff M, Ormel J, Katon W, Lin EH: Disability and depression among high utilizers of health care: a longitudinal analysis. *Arch Gen Psychiatry* 1992; 49:91-100
13. Wells KB, Burman MA: Caring for depression in America: lessons learned from early findings of the Medical Outcomes Study. *Psychiatr Med* 1991; 9:503-519
14. Katon W, von Korff M, Lin E, Bush T, Ormel J: Adequacy and duration of antidepressant treatment in primary care. *Med Care* 1992; 30:67-76
15. Unutzer J, Patrick DL, Simon G, Grembowski D, Walker E, Rutter C, Katon W: Depressive symptoms and the cost of health services in HMO patients aged 65 and over: a 4-year prospective study. *JAMA* 1997; 277:1618-1623
16. McCusker J, Cole MG, Keller E, Bellavance F, Berard A: Effectiveness of treatments of depression in older ambulatory patients. *Arch Intern Med* 1998; 158:705-712.
17. World Health Organization (2001). WHODAS II Disability Assessment Schedule. Geneva: WHO
18. A. P. Rajkumar, P. Thangadurai, P. Senthilkumar, K. Gayathri, M. Prince and K. S. Jacob. Nature, prevalence and factors associated with depression among the elderly in a rural south Indian community. *International Psychogeriatrics* 2009, 21:2, 372-378.
19. Osborn, D. P. et al. (2003). Factors associated with depression in a representative sample of 14,217 people aged 75 and over in the United Kingdom: results from the MRC trial of assessment and management of older people in the community. *International Journal of Geriatric Psychiatry*, 18, 623-630
20. Sherina, M. S., Rampal, L. and Mustaqim, A. (2004). The prevalence of depression among the elderly in Sepang, Selangor. *Medical Journal of Malaysia*, 59, 45-49.
21. Tsai, Y. F., Yeh, S. H. and Tsai, H. H. (2005). Prevalence and risk factors for depressive symptoms among community-dwelling elders in Taiwan. *International Journal of Geriatric Psychiatry*, 20, 1097-1102
22. Chi, I. et al. (2005). Prevalence of depression and its correlates in Hong Kong's Chinese older adults. *American Journal of Geriatric Psychiatry*, 13, 409-416.
23. Khattri, J. B. and Nepal, M. K. (2006). Study of depression among geriatric population in Nepal. *Nepal Medical College Journal*, 8, 220-223.
24. Jain, R. K. and Aras, R. Y. (2007). Depression in geriatric population in urban slums of Mumbai. *Indian Journal of Public Health*, 51, 112-113.
25. Kaneko, Y., Motohashi, Y., Sasaki, H. and Yamaji, M. (2007). Prevalence of depressive symptoms and related risk factors for depressive symptoms among elderly persons living in a rural Japanese community: a cross-sectional study. *Community Mental Health Journal*, 43, 583- 590
26. Jacob, K. S., Senthil Kumar, P., Gayathri, K., Abraham, S. and Prince, M. J. (2007b) Can health workers diagnose dementia in the community? *Acta Psychiatrica Scandinavica*, 116, 125-128.
27. Heath, I. (1999). Commentary: there must be limits to the medicalisation of human distress. *BMJ*, 318, 439-440.
28. Kessler, D., Lloyd, K., Lewis, G. and Gray, D. P. (1999). Cross sectional study of symptom attribution and recognition of depression and anxiety in primary care. *BMJ*, 318, 436-439.
29. Kuruvilla, A. and Jacob, K. S. (2007). Poverty, social stress and mental health. *Indian Journal of Medical Research*, 126, 273-278.