## Research Article

# A study on prevalence and correlates of depression among elderly population of rural South India

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**ABSTRACT**

**Background:** Globally the population is ageing rapidly. According to WHO it is projected that the number of persons aged 60 or over is expected to more than triple by 2100. As estimated by WHO, unipolar depression occurs in 7% of the general elderly population. Multiple social, psychological, and biological factors determine the level of mental health of a person. Depression is both under diagnosed and undertreated in primary care settings. Only sporadic data has been collected on mental health conditions of the elderly in India. Hence, the present study was planned to estimate the prevalence of depression among elderly and to determine its correlates in a rural setting.
**Methods:** A community based cross-sectional study was conducted in a rural area. A semi-structured questionnaire assessing the socio-demographic characteristics and risk factors for depression was administered to 290 geriatric people. Geriatric Depression Scale (short version) and Activities of Daily Living (Basic and Instrumental) were used to assess the prevalence of depression and physical dependence respectively. Data was analysed using Epi-info version 7. Chi square test was performed to determine the statistical significance of the differences observed.
**Results:** 9.3% of the elderly had depression. Depression was found to be significantly associated with increased age, co-morbid conditions, economic dependence and physical dependence for daily activities.
**Conclusions:** Provision general health care service along with economic support can reduce the dependency and ultimately depression among the elderly.

**Keywords:** Geriatric, Depression, Correlates

## INTRODUCTION

Globally the population is ageing rapidly. According to WHO it is projected that the number of persons aged 60 or over is expected to more than triple by 2100. Mental health and emotional well-being are as important in older age as at any other time of life. As estimated by WHO, unipolar depression occurs in 7% of the general elderly population.[1] Multiple social, psychological, and biological factors determine the level of mental health of a person at any point of time. As well as the typical life stressors common to all people, many older adults lose their ability to live independently because of limited mobility, chronic pain, frailty or other mental or physical problems, and require some form of long-term care. In fact, depression is a common cause of disability in older adults. Among its consequences are reduced life satisfaction and quality, social deprivation, loneliness, cognitive decline, ADL limitations, suicide and increased non-suicide mortality. Mental health has an impact on physical health and vice versa. All of these factors can result in isolation, loss of independence, loneliness and psychological distress in older people. Depression is both under diagnosed and undertreated in primary care settings. Symptoms of depression in older adults are often overlooked and untreated because they coincide with other late life problems.

In India, although the percentage of aged persons is low as compared to developed countries, nevertheless the absolute size is considerable. For the year 2010 the estimates are 8% of the total population were above the age of 60 years, and is likely to rise to 19% by 2050.[2] With an overwhelming majority of geriatric care being offered in tertiary hospitals in urban areas, the rural elders face medical indifference. Not only hospital care, but elder nursing homes, recreation facilities and old age centres are overwhelmingly present in urban areas. Gerontology in India is very much in a nascent stage. With such a huge mismatch in the urban-rural population and health care system, geriatric medicine in India faces an uphill task. Only sporadic data has been collected on mental health conditions of the elderly in India.[3-7] It is important to prepare health providers and societies to meet the specific needs of older populations. Hence, the present study was planned to estimate the prevalence of depression among elderly and to determine its correlates in a rural setting.

## METHODS

A cross-sectional, community based, descriptive study was conducted from September 2010 to March 2011 to know the prevalence of depression and its correlates among elderly population. The study was carried at Venkatachalem village, which is a field practice area of Narayana Medical College, Nellore district located in Southern Indian state of Andhra Pradesh. The total population of this village at the time of study was 5012. The study universe consisted of the villagers above 60 years of age and resident of the village. Universal sampling technique was used, in which every household in the village was visited and all elderly above 60 years of age, who are willing to participate in the study were included. Out of the 307 villagers in the target group, 8 refused to participate in the study and 9 were away from the dwelling.

### Data collection

All the participants were interviewed personally. First, oral informed consent was taken from the study subject. A semi-structured questionnaire assessing the socio-demographic characteristics and risk factors for depression was used. Geriatric Depression Scale (GDS short version) and activities of daily living (Basic and Instrumental) were used to assess the prevalence of depression and physical dependence for daily activities respectively.[8,9] Score more than 5 on GDS was considered as depression. Activities of Daily Living score 10-17 was considered as dependent, 18-26 as partially dependent and score 27-30 as independent. B G Prasad's socio-economic scale was used to classify the socio-economic status of the study population, updated for per-capita income according to All India Whole Sale Price Index (AIWPI) for October 2010.[10,11]

### Processing and analysis of data

The data were entered and analysed by using Epi-info software. Chi square test was done to determine statistical significance of the differences observed.

## RESULTS

A total of 290 elderly people were studied, out of whom 98 (33.8%) were males and 192 (66.2%) were females. Depression was found among 27 (9.31%) elderly people. Table 1 shows the differences in prevalence of depression according to the various characteristics under study. Elderly above 70 years of age were 28.62% (n=83). The prevalence of depression in age group 70-79 years was 30.50% and in age group above 80 years it was 25%. It was observed that the prevalence of depression was significantly higher in people above 70 years of age ($\chi^2_2$df=53.547, p=0.000). Depression was more in females (9.38%) as compared to males (9.18%) but the difference was not statistically significant ($\chi^2_1$df=0.0028,p=0.958). Widow/widower and those living single had more depression (10.49% and 33.33% respectively) than married persons (7.2%), though not statistically significant ($\chi^2_2$df= 2.978, p=0.226). According to ADL scale, 12.4% of individuals were dependent on their family members and 17.6% were partly dependent for performing their daily activities. Depression was significantly higher among dependents (41.67%), as compared to independent (1.48%) and partially dependent (17.65%). Complete economic dependence was found among 45.17% of the elderly. The prevalence of depression was significantly higher ($\chi^2_2$df= 10.227, p=0.006) among those who were economically dependent (prevalence = 15.27%). Also the number of co-morbid condition had an influence on the presence of depression, with 36.67% of elderly having more than 6 co-morbid conditions suffering from depression. And this finding was statistically significant ($\chi^2_2$df= 31.1168, p=0.000).

## DISCUSSION

An increasing geriatric population is associated with rising prevalence of chronic non-communicable diseases; therefore, the magnitude of depression is also expected to grow. In the present study the prevalence of depression was found to be 9.31%. According to WHO the prevalence of unipolar depression among general elderly population is 7%.[1] Similar results were obtained by Sengupta and Benjamin in Ludhiana with prevalence of 8.9%.[6] A meta-analysis of 74 studies, including 487,275 elderly individuals found the worldwide prevalence rate of depressive disorders to be between 4.7 to 16%. This study indicates a comparatively higher prevalence of geriatric depression in India (21.9%).[12] A higher prevalence of depression was also observed in Surat city where the prevalence was 39.04%.[3] In another study conducted in Udupi Karnataka the prevalence of depression was found to be 48%.[13] A study done by Sati P in a rural area in Tamil Nadu showed a prevalence of

42.7% and by Ankur barua in Manipal showed a prevalence of 21.7%.[4,5] The prevalence of depression in the present study is comparatively less. This difference in the prevalence with this study might be due to the different instruments used for measuring depression and

also their different sample size. In the present study depression was found more among females as compared to males, but this difference was not statistically significant. Similar observation was made by Ankur Barua in Manipal.[5]

**Table 1: Correlates of depression among elderly.**

| Correlates under study | | Depression | No depression | Total | $\chi^2$ and p value |
|---|---|---|---|---|---|
| Age | 60-69 years | 3 (1.45%) | 204 (98.55%) | 207 | $\chi^2$ 2df=53.547 p=0.000 |
| | 70-79 years | 18 (30.50%) | 41 (69.5%) | 59 | |
| | ≥80 years | 6 (25%) | 18 (75%) | 24 | |
| Sex | Male | 9 (9.18%) | 89 (90.81%) | 98 | $\chi^2$1df= 0.0028 p=0.958 |
| | Female | 18 (9.38%) | 174 (90.62%) | 192 | |
| Marital status | Currently married | 9 (7.2%) | 116 (92.8%) | 125 | $\chi^2$2df= 2.978 p=0.226 |
| | Widow/widower | 17 (10.49%) | 145 (89.51%) | 162 | |
| | Single | 1 (33.33%) | 2 (66.67%) | 3 | |
| Economic dependence | Independent | 2 (3.17%) | 61 (96.83%) | 63 | $\chi^2$2df= 10.227 p=0.006 |
| | Partly dependent | 5 (5.02%) | 91 (94.79%) | 96 | |
| | Dependent | 20 (15.27%) | 111 (84.73%) | 131 | |
| Co-morbid conditions | ≤2 | 2 (2.7%) | 72 (97.29%) | 74 | $\chi^2$2df= 31.1168 p=0.000 |
| | 3-5 | 14 (7.52%) | 172 (92.47%) | 186 | |
| | ≥6 | 11(36.67%) | 19 (63.33%) | 30 | |
| Activities of Daily Living | Dependent | 15 (41.67%) | 21 (58.33%) | 36 | $\chi^2$2df= 62.7868 p=0.000 |
| | Partially dependent | 9 (17.65%) | 42 (82.35%) | 51 | |
| | Independent | 3 (1.48%) | 200 (98.52%) | 203 | |
| Total | | 27 (9.31%) | 263 (90.69%) | 290 | |

In the present study, depression was found to be associated with increased age. Age more than 70 years was associated with increase prevalence of depression and this difference was statistically significant. Similar trends in the prevalence of depression with increasing age was observed by Ankur Barua in Manipal and Sengupta and Benjamin in Ludhiana.[5,6] The prevalence of depression was more among widows/widowers and those living single, but the difference was not statistically significant. Similar observations were made by others.[5,6] Our findings were not consistent with similar studies where depression was more among widow/widowers and was statistically significant.[3,4] A study in Pakistan also reported female gender, elderly without a spouse, low level of education, and unemployment to be independent predictors of depression.[14] However, a study among community-dwelling elderly in Tamil Nadu found that age, female gender, cognitive impairment, and disability status were not significantly associated with geriatric depression.[15]

People with depression suffer from various medical conditions. They are at higher risk of chronic conditions like coronary heart disease, hypertension, diabetes mellitus, cancers etc.[15] Here we found that the number of co-morbid condition is more in elderly having depression and the difference is statistically significant. Depression

decreases an individual's quality of life and increases dependence on others. People are less healthy and more dependent for their daily activities. In the present study we have observed a strong relation between prevalence of depression and physical dependence for daily activities. In another study, depression in elderly was found to be strongly associated with lower score on Activities of Daily Living scale in three different Asian countries.[9] In the present study it was found that 45.17% of elderly were completely dependent for economic support and prevalence of depression in this group was significantly high. Economic insecurity reveals the problem of maintaining day to day livelihood and results in lack of access to resources to maintain minimum level of living. At the national level more than 70 percent of the elderly females are fully dependent in both rural and urban areas (72.07 and 72.12) while it is just over 30 in the case of elderly men (32.7 and 30.11).[17] The financial support system for the elderly is a crucial factor in determining their health and wellbeing. In the present study, it was observed that elderly who were economically independent were less depressed. This shows that by providing economic support in form of old age pension, we can reduce the feeling of helplessness and dependence, and thereby reducing depression among elderly.

## CONCLUSION

Increased age, economic dependence, co-morbid conditions and dependence for daily activities are the major determinant of depression. By improving the general health condition, elderly can be independent in performing their daily activities and thereby less depressed and also economic support in form of pension can reduce their feeling of helplessness and improve their mental status.

## REFERENCES

1. WHO factsheet on depression among elderly. http://www.who.int/mediacentre/factsheets/fs381/en/ Assessed on 16 July 2015.
2. Park K. Park Text Book of Preventive and Social Medicine, Edition 20th, Banarasidas Bhanot Publishers, Jabalpur. 2009:512-514.
3. Vishal J, Bansal RK, Patel S, Bimal T. A study of depression among aged in surat city. National J of Community Med. 2010;1(1):47-9.
4. Sinha SP, Shrivastava SR, Ramasamy J. Depression in an Older Adult Rural Population in India. MEDICC Rev. 2013;15(4):41-4.
5. Barua A, Acharya D. Depression in elderly: A cross-sectional study in rural south India. JIMSA. 2007;20(4):259-61.
6. Sengupta P, Benjamin AI. Prevalence of depression and associated risk factors among the elderly in urban and rural field practice areas of a tertiary care institution in Ludhiana. Indian J of Public Health. 2015;59(1):3-8.
7. Bodhare TN, Kaushal V, Venkatesh K. Prevalence and risk factors of depression among elderly population in a rural area. Perspectives in Medical Research. 2013;1(1):11-5.
8. Geriatric depression scale: short version. http://www.mhsfopcls.com/downloads/ger_dep_scl.pdf. Assessed on 12 September 2010.
9. Wada T, Ishine M, Sakagami T, Kita T. Depression, activities of daily living, and quality of life of community-dwelling elderly in three Asian countries: Indonesia, Vietnam, and Japan. Arch Gerontol Geriatr. 2005;41:271-80.
10. Agarwal AK. Social Classification, the need to update in the present scenario. Indian J of Community Med. 2008;33(1):50-1.
11. All India Whole Sale Price Index. Available at: http://www.eaindustry.nic.in/home.asp. Assessed on 17 December 2010.
12. Barua A, Ghosh MK, Kar N, Basilio MA. Prevalence of depressive disorders in the elderly. Ann Saudi Med. 2011;31(6):620-4.
13. Lena A, Ashok K, Padma M, RamathV, Kamath A. Health and social problems of the elderly :A crossectional study in udupitaluk Karnataka. Indian J Community Med. 2009;34(2):131-4.
14. Taqui AM, Itrat A, Qidwai W, Qadri Z. Depression in the elderly: Does family system play a role? A cross-sectional study. BMC Psychiatry. 2007;7:57.
15. Rajkumar AP, Thangadurai P, Senthilkumar P, Gayathri K, Prince M, Jacob KS. Nature, prevalence and factors associated with depression among the elderly in a rural south Indian community. Int Psychogeriatr. 2009;21:372-8.
16. WHO. Non-communicable diseases. WHO Factsheet. Available at: www.who.int/mediacentre/factsheets/fs355/en/index.html. Assessed on 29 September 2012.
17. Deprivation and vulnerability among elderly in India. http://www.igidr.ac.in/pdf/publication/WP-2011-013.pdf . Assessed on 24 June 2014.