

Prevalence of Depression among Geriatric Population and its Association with Dependency: A Cross-Sectional Study in Rural Eastern Haryana, India

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Abstract:

Introduction: Depression in the elderly is becoming common and has dangerous implications on elderly that not only lowers quality of life, but it also has an impact on the prognosis of other chronic conditions leading to disability. According to WHO, depression occurs in 7% of elderly population and in India prevalence of depression among elderly is 9.3%. **Objectives:** To estimate the prevalence of depression among geriatric age group and to determine the association between the depression and the dependency among geriatric population. **Method:** Present cross sectional study was conducted with 220 villagers of age above 60 years from catchment area of Rural Health training center of medical college. The identification of depression and dependency was carried out using the Geriatric Depression Scale (GDS) and Barthel Index respectively. **Results:** The prevalence of depression and dependency among the geriatric population was found out to be 28 % and 31%, respectively. There was significant association between median scores of Barthel Index among depressed and non-depressed individuals (p value< 0.001). There was significant association between depression and dependency (P value=0.05). **Conclusion:** The present study shows 28% of prevalence of depression among elderly population and dependency as a significant risk factor for depression, thus showing the importance of analyzing dependency status while screening for the mental health status of the elderly person.

Keywords: Barthel Index, Dependency, Depression, Geriatric Depression Scale

Introduction:

People worldwide are living longer and Ageing is a natural process. At the biological level, ageing is mostly due to the build-up of numerous types of cellular and molecular damage over a period of time which results in deterioration of physical and mental abilities, disease risk increases, and eventually, death occurs.^[1] Apart from these changes, ageing is linked to life transitions including retirement, decline of social support system and losing friends and companions causing loneliness and isolation. Depression is one of the major mental disorders in the world. It's known that about 280 million people per month are affected by depression episodes.^[2] Depression affects one in 15 adults per year that is 6.7%.^[3] Depression accounts to about 4.4% of the total DALY (Disability Adjusted Life Index) of the world and it is expected to be the second leading cause of disease burden in 2020 to 2030.^[4]

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Depression in old age is an emerging public health problem which has disastrous implications which contribute to sorrow throughout, leading to morbidity. It also leads to poor physical, cognitive and social functioning. Depression not only lowers quality of life, but it also has an impact on the prognosis of other chronic conditions, exacerbating disability.^[5]

In India also rapid changes in the family system have made the geriatric population more prone to psychological problems, particularly depression and community based studies have shown a prevalence range of 3.9% to 47.0% for depression.^[6]

In the state of Haryana also, depression and community based studies have shown prevalence of 14.4%.^[7] Functional disability is one of the major concerns among older people leading to mortality and morbidity.^[8] It is described as an acquired difficulty to carry out simple daily activities or more complicated tasks required for independent living.^[9] Impaired functional ability not only jeopardizes older people's autonomy but also has an impact on the family, community, health system, and older adults themselves, increasing their vulnerability and dependence as they age, lowering their quality of life, and raising their risk of developing geriatric conditions like dementia, depression, incontinence, vertigo, falls, spontaneous bone fractures, and failure to thrive.^[10,11]

Along with the rapid rise in the proportion of elderly, the prevalence of diseases pertaining to older adults including depression is also expected to rise in the state. Such mental health problems often go unidentified by healthcare professionals and older people themselves. In addition, the stigma surrounding these conditions makes people reluctant to seek help. The presence of significant depressive symptoms can act as a predictor for the incidence of major depression in older adults. So, the successful identification of elderly at risk is important for early intervention due to public health

implications. This research is a small step towards understanding the importance of dependency assessment during the depression screening among the elderly population.

Objectives:

To estimate the prevalence of depression among geriatric age group and to determine the association between the depression and the dependency among geriatric population

Method:

This was a cross sectional study involving geriatrics population residing at catchment area of Rural Health Training Center of Medical College. The sample size was calculated using the formula $n=4pq/L^2$. The prevalence of depression "p" among elderly was taken as 15.17%.^[12] Using the above formula considering 95% confidence interval and 10 % non-response rate, sample size came out to be 220.

A house to house survey was done among all geriatric population above 60 years of age in the field area using simple random sampling. From each house only one elderly was selected randomly. Participants who have underlying other psychiatric diseases were excluded from the study. Informed consent was obtained from the study participants after explaining the nature and duration of the study.

The data was collected using two pretested questionnaires, in which one was for assessing depression in the individual and other was to identify the dependency. Depression was assessed using the 30-item GDS, which is a self-reported, basic screening measure of depression in the elderly.^[13] A valid Hindi language version of GDS-30 was made available and used where ever needed. GDS Screens for seven characteristics of depression in elderly, which are somatic concern, lower affect, cognitive impairment, feelings of discrimination, impaired motivation, lack of future orientation and lack of self-esteem. According to this scale, scores between - 0-9 will be considered as normal, 10-19 is mildly depressive and 20-30 Severely depressive.^[14]

Dependency was assessed using Barthel Index. The Barthel Index (BI) measures ten functions that are important for independent living – feeding, bathing, grooming, dressing, bowel and bladder continence, toileting, transfers, mobility, and stair use. Items are weighted and scored according to their perceived importance. Higher scores indicate better performance. the maximum score of 100 indicated full independence and Score of less than 60 was taken as dependent.^[15]

Data analysis:

The data analysis was done using EPI INFO version 7.2.6.0. For all the test of significance P value <0.05 was considered significant. All the tests were performed at a significance level of 5%, thus an association was significant if the 'P' value was less than 0.05. Categorical variables were presented as percentages (%) and quantitative data were presented as mean (\pm standard deviation). Pearson's Chi-square test was used for categorical variables. Logistic regression was used to find out the independent association of various factors with depression. The outputs of regression analysis were presented as adjusted Odds Ratio (OR) with 95% Confidence Interval. Comparison of two medians of Barthel scores was tested with Wilcoxon rank sum test.

Ethical consideration:

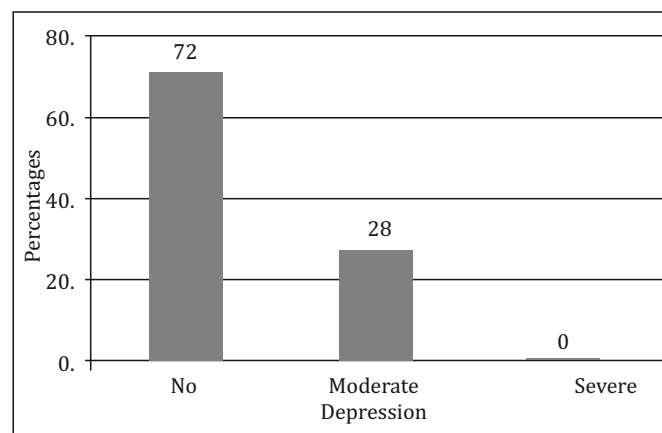
Approval from the institutional ethics committee was taken before the beginning of study. Participants identified with depression through GDS was counseled and further referred to the psychiatrist of tertiary care if required.

Results:

A total of 220 elderly persons participated in the study. The mean age of study participants was 71 years (SD=8.4). The sample had 54.09% males and 45.91% females. In this study, the prevalence of depression among the geriatric population was 28.18% (CI: 22.34-34.62). Authors used geriatric depression scale (GDS-30) to screen depression with

cut off score of 10. Mean score of GDS-30 was 6.8 (SD=4.9). Among the depressed individuals about 28% were females and 34% were males. The mean age among the participants having depression was 71 years. A GDS score of 0-9 was considered normal, 10-19 was considered mild depression and 20-30 was severe depression. Distribution of study subjects based on the severity of depression is given in Figure 1.

Figure 1: Status of Depression among Study Participants (N=220)



The dependency prevalence among the study population accounts to about 31% which was calculated using Barthel Index. The median Barthel score among the depressed and non-depressed participants were 65 and 90, respectively (p value <0.001) which means there is definite difference among the groups. Positive association was found out between depression and dependency (p value= 0.0001) (Table 2)

The variables which were significantly associated with depression in univariate analysis like age, sex and dependency were considered for multiple logistic regression analysis. The adjusted odds ratio and 95% CI are given in Table 3. Binary logistic regression revealed that after adjusting for all other factors, dependency and age were found to be independent predictors of depression in elderly.

Table 1: Status of Depression and Dependency among the Study Population (N=220)

Parameters	With depression	Without depression	P value
Mean age in years (SD)	71 (8)	70 (8)	0.05 ^a
Gender			
Male n(%)	34 (28.57)	85 (71.43)	0.89 ^a
Female n(%)	28 (27.72)	73 (72.28)	
Barthel score (Median, IQR)	65 (60,90)	90 (85,100)	<0.001 ^b
Dependency n(%)	32 (47.06)	36 (52.94)	0.0005 ^a

a- Chi square test, b- Wilcoxon Rank Sum test

Table 2: Association between risk factors among cases and controls (N=800)

Depression	Dependent (N=68)		Not dependent (N=152)		Chi square value P value
	Female n(%)	Male n(%)	Female n(%)	Male n(%)	
Present	13 (38%)	19 (55)	15 (22%)	15 (17%)	15.97
Absent	21 (62%)	15 (45%)	52 (78%)	70 (83%)	<0.001

Table 3: Multiple logistic regression analysis showing predictors of depression

Variables	Odd's ratio	95% CI	P value
Barthel's index	5.104	2.7-9.6	<0.0001
Gender	0.95	0.53-1.72	0.88
Age	1.046	1.01-1.082	0.009

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. The prevalence of depression in elderly was 28.18%. Studies have shown a prevalence as high as 76% (Chennai)^[16] to as low as 8.9% (Ludhiana)^[17] for depression among the elderly. This difference may be because of differences in the study setting, sample size, scales used and, methodology. Difference in the socio-demography of the study population is also a reason for the varying prevalence.

In present study, GDS -30 with cut off of 10 was used to screen elderly population for depression. This scale was used by Pilania et al and Gupta et al but with cut off of 22 among rural and hospital settings respectively. Reported prevalence in hospital based study in North India was 28%.^[18] In rural Haryana study prevalence was 14.4%.^[7] This study was in same setting as present study, difference in prevalence is largely due to different cut off value used in the study.

In present study, depression was found out to be associated with age. Similar findings was observed by Barua et al in Manipal and Sengupta et al in Ludhiana.^[17,19] Present study showed no significant association between depression and gender. A study

among community-dwelling elderly in Tamil Nadu found out that female gender was not significantly associated with geriatric depression.^[20] But in some studies conducted in India and Sri Lanka female had higher prevalence of depression.^[7,21-23]

In present study dependency prevalence was 31% and there was significant association between depression and dependency. From the study from Andhra Pradesh 24.62 percent were totally dependent on family members or others, while 24.43 percent were moderately dependent. Around 68 percent of the economically disadvantaged were depressed.^[24] Economic uncertainty is one of the leading causes of psychological diseases such as depression, a multipronged strategy is urgently needed, not only in the form of government help, but also in the form of raising awareness among caregivers about supportive care.^[24]

Early identification of depression is aided by screening the elderly for depression at the primary care level. This emphasizes the need for community-based therapies to effectively manage chronic illness in the elderly. As per the multivariable logistic regression model, depression was associated with older persons over the age of 80, female sex and being physically dependent. These research all point to the role of financial, physical, and psychological dependency in older adults' depression. Findings suggest that economical, physical and psychological dependencies contribute to the depression among elderly

Conclusion:

The prevalence of depression in the elderly was 28% in rural population of Eastern Haryana. Female gender and physical dependency were identified as significant risk factors of depression in the elderly. Though depression is a common mental health problem in the elderly, it is not normal part of old age. Dependency in all forms (physical, medical, social, functional and psychological) should be treated as modifiable risk factors. Elderly should never be

considered a burden to society. Negligent attitude towards the elderly should be change and due considerations should be given to the geriatric population while making health policies and programs.

Declaration:

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Conflict of Interest: Nil

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