ORIGINAL ARTICLE

Depression among the elderly population dwelling in Dibrugarh District Assam: A Community Based Study

Manuj Kalita[1], Tulika Goswami Mahanta[2], Progyashree Borthakur[3], Akanksha Goswami[4], Biraj Kumar Kalita[5], Suvjeet Gogoi[6], Rajib Bora[7], Bhupendra Narayan Mahanta[8]

[1]Scientist C, ICMR-RMRC-NE, Dibrugarh

[2,3,4,6,7]Department of Community Medicine, Assam Medical College, Dibrugrah, Assam

[5]Population based cancer Registry. ICMR, Dibrugarh

[8]Department of Medicine, Lakhimpur Medical College, Lakhimpur, Assam

CORRESPONDING AUTHOR

Dr Tulika Goswami Mahanta, MD(Community Medicine), PhD, Professor, Department of Community Medicine, Assam Medical College, Dibrugrah, Assam

Email: drtulikagoswami@gmail.com

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ABSTRACT

Background: Depression is found to be the most common psychiatric condition among the elderly, yet remains undiagnosed and mostly considered as normal process of ageing. **Aim**: To estimate the prevalence and determinant of geriatric depression among elderly population residing in Dibrugarh district. **Methods**: A community-based cross-sectional design is used to screen geriatric depression (aged 60 and above) from March 2025 to August 2025. Required sample size was 480. Stratified random sampling design was used and a total of 12 PSUs/SSUs (6 urban + 6 rural) were chosen for the study. Primary study tool employed for data collection is "Geriatric Depression Scale (GDS-SF)". Univariate and bivariate analysis was done. $p<0.05$ considered as significant. **Result** : Overall rate of depression among the elderly was 54.8%, with 45.2% asymptomatic, 43.3% with mild depression and 11.5% for moderate to severe depression. Gender ($p = 0.002$, $p < 0.05$), employment status ($p = 0.011$, $p < 0.05$), and monthly income ($p = 0.042$, $p < 0.05$) was significantly associated with depression. Elderly aged 60-69 years and those residing in rural areas exhibited higher prevalence of depression. However, no statistically significant association was identified. **Conclusion**: Late-life depression remains a significant public health problem particularly for women, unemployed and poorer section. High prevalence of depression needs to be addressed early with different interventions incorporated as comprehensive health care for elderly

KEYWORDS

Geriatric, depression, Prevalence, elderly, Assam

INTRODUCTION

World's population has been experiencing rapid ageing over the last 50 years. National Policy on Older Adults defines "senior citizen" or "geriatric population" as 60 years and above. (1) Ageing is a natural transition and an inescapable process of human life with multidimensional aspect. In addition to biological changes affecting physical and mental heath, ageing is often associated with other life transitions like retirement, relocation and the death of spouses and friends. Geriatric symptoms are frequently the consequences of multiple underlying factors and include falls, urinary incontinence, disability, dementia and pressure ulcers, along with other social and mental health challenges. (2) According to a 2023 national survey, three in ten adults suffer from depression at some point in their lives, and about 18% population are currently experiencing depression. (3) Additionally, psychiatric illness leads to significant stigma that deprives people of their dignity and leaves them feeling alone and despair and hopelessness. (4)

Depression, also known as major depressive disorder, major depression or clinical depression, is a serious mood disorder, associated with increased risk of morbidity, suicidal tendency, decreased physical, cognitive and social functioning, and greater self-neglect, leading to higher mortality. (5) Ideally, most older adults remain content with their lives, even though they may face health issues or physical limitations compared to younger individuals. (6) Geriatric depression is masked by multiple comorbidity, cognitive impairment, immobility and dependency with several risk factors such as insomnia or other stressful events. (7,8)

Meta-analysis showed 34% of older adults suffer from depression and that there is an 85% treatment gap for depression, according to the National Mental Health Survey (NMHS, 2015-2016). (8) Most common mental and neurological disorders among the aged population

are depression, dementia, and anxiety disorder, which affect approximately 7%, 5% and 3.8% of the world's population. (9) It was estimated that by 2030, there will be 34 nations with over 20% population above 65 years. As per 2011 census, India has 104 million older people (60+ years), constituting 8.6% of the total population. (10) This shift brings wide range of challenges that call for a comprehensive approach to address the evolving healthcare needs of older adults. Therefore, it is essential to understand and respond to the diverse public health issues faced by the elderly population in India. (11)

Over 20% of adults aged 60 and over suffer from a mental or neurological disorder (excluding headache disorder), and 6.6% of all disability (DALYs), attributed to mental and neurological disorders. (9) India has only 0.75 psychiatrists per 100,000 people, far below the World Health Organization's (WHO) recommendation of minimum of 3 psychiatrist per 100,000 as highlighted in the Economic Survey 2024–25 (12). Very few studies (community based) have been conducted in India to address this prime issue. Therefore, this study is planned to estimate the prevalence of geriatric depression and its determinants among elderly people dwelling in Dibrugarh District, Assam.

Material & Methods

Methods: A community-based cross-sectional design is used to screen depression among the elderly population. The study period was from March 2025 to August 2025. Study participants were elderly residents of Dibrugarh district.

Sample Size: Considering a 47% [13] rate of depression with a 10% relative decision and 95% confidence level, the required sample size is 433, which can be inflated to 480 considering a 10% non-response rate.

Sampling Procedure

Stratified sampling design was used for rural and urban areas. Stratification was based on geographic distribution and elderly population size when selecting villages in rural areas and blocks in urban areas. A total of 12 primary sampling units (PSUs) were chosen . In all selected Primary sampling unit (PSU), one location was identified based on operational feasibility, and eligible participants were invited to this facility by house to house visit. Using consecutive sampling, participants meeting the inclusion criteria were selected from each PSUs. The elderly persons of the sampled population were interviewed by using a structured pretested questionnaire after taking informed consent in the presence of ASHA (Accredited Social Health Activists) as face to face interview.

Study variables: Dependent variable (Outcome)-Geriatric Depression. Independent variable (Predictor)-Sociodemographic variables, including age, gender, address, educational qualification, ethnic/racial/cultural subgroup, marital status, work status, and income.

Inclusion and Exclusion Criteria : All selected consenting participants fulfilling eligibility criteria like age above 60 years from the study area were included, while those with serious medical condition or on terminal illness with communication difficulties like hearing loss, any other known history of cognitive impairment, and those who were unable to respond to the questionnaire were excluded.

Study tools: Section A contains socio-demographic variables while Section B contains the primary study tool i.e., the Geriatric Depression Scale (GDS-SF), originally developed by Sheikh and Yesavage (1986), with 92% sensitivity and 89% specificity, a concise version of the standard Geriatric Depression Scale. Scoring was done for GDS-SF based on the guidance by Sheikh and Yesavage (1986), 0-4 are classified as within the Normal range, 5-9 as Mild depression, and 10-15 as moderate to severe depression. Source: PAR, Inc. [14]

Ethical consideration: IEC clearance was obtained from IEC(H) of Assam Medical College. Written informed consent was obtained from each participants before enrolment. Those in need of health assistance were referred to Block PHC and Assam Medical College for further care.

Statistical analysis: Data entry was done using MS Excel 2007, and for descriptive statistical analysis, frequency, percentage, mean, median, range and standard deviation were calculated. Chi-square test is performed using SPSS 29 to assess the determinants [15] p-value less than 0.05 is considered statistically significant.

Results

Socio-demographic profile: A total of 480 individuals were screened. Majority of participants (75.6%) were aged between 60 and 69 years. Gender ratio favoring women (63.1%: 36.9, F:M). Urban rural deferential was 69.6% rural vs 30.4% urban. Literacy status was low: 40.2 participants had not received any formal schooling, while only 5.6% attained graduation and above. In terms of ethnic, racial, or cultural subgroups, the largest segment was identified as General (32.8%). Majority were homemakers (29.2%) and self-employed individuals (22.7%), while 20% were retired. A very small proportion (7%) were government employees. Average income was Rs. 18,568. [Table1]

Prevalence of geriatric depression: Table 2 and Figure 2 showed the rates of depression. The overall rate of depression in this elderly group was 54.8%. Of which 45.2% of the study population were asymptomatic, while 43.3% had mild depression and 11.5% experienced moderate to severe depression. Average depression score was 5.24 with standard deviation of 3.143, while median score was 5.

Table 3 showed the relationship between depression levels and socio demographic variables in the elderly, analyzed using the chi-square test at a 5% significance level. Significant associations were found between depression levels with gender ($p = 0.002$, $p < 0.05$), employment status ($p = 0.011$, $p < 0.05$), and monthly income ($p = 0.042$, $p < 0.05$). In contrast, no significant associations were observed between depression levels and the variables: age ($p = 0.588$, $p > 0.05$), cluster/centre ($p = 0.223$, $p > 0.05$), ethnic/racial/cultural subgroup or others ($p = 0.215$, $p > 0.05$), marital status ($p = 0.371$, $p > 0.05$), and highest level of education ($p = 0.123$, $p > 0.05$).

Table 1: Socio-demographic variables of the study participants

Variables	Frequency	Percentage
Age in years		
60-69	363	75.6%
70-79	97	20.2%
80-89	16	3.3%
90-99	4	0.8%
Gender of the participant		
Female	303	63.1%
Male	177	36.9%
Residence		
Rural	334	69.6%
Urban	146	30.4%
Highest level of education	193	40.2%
No formal schooling	55	11.5%
	89	18.5%
Less than primary school	53	11%
Primary school completed	63	13.1%
Secondary school completed	26	5.4%
High school completed	1	0.2%
College/University completed		
Postgraduate degree		
Ethnic/racial/cultural subgroup/others		
General	157	32.8%
More other backward class (MOBC)	2	0.4%
Other Backward caste	128	26.6%
Scheduled Caste	152	31.7%
Scheduled tribe	41	8.5%
Marital status		
Never married	15	3.1%
Currently married	348	72.5%
Separated	7	1.5%
Widowed	110	22.9%
Work status		
Government employee	7	1.5%
Non-government employee	20	4.2%
Self-employed	109	22.7%
Homemaker	140	29.2%
Retired	96	20%
Unemployed (able to work)	68	14.2%
Unemployed (unable to work)	40	8.3%
Income (per month)		
<25000	413	86%
25000-49999	46	9.6%
50000-99999	14	2.9%
100000-149999	5	1%
150000-200000	2	0.4%

Table 2: Distribution of the geriatric people according to the level of depression (N=480)

Levels of Depression	Frequency	Percentage
0-4 (Normal)	217	45.2
5-9 (Mild depression)	208	43.3
10-15 (Moderate to Severe depression)	55	11.5
Total	480	100

Figure 2 shows the distribution according to the level of depression among the geriatric population

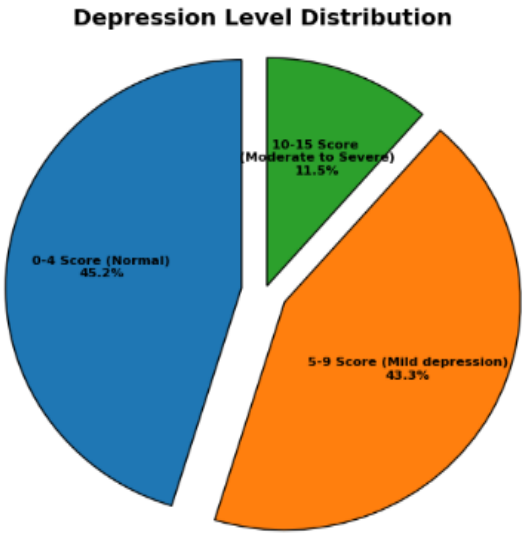

Table 3: Prevalence of depression with socio demographic variables of the geriatric population.

Variables	Subgroup of variables	Normal (0-4) n (%)	Mild Depression (5-9) n (%)	Moderate to Severe Depression (10-15) n (%)	Total n (%)	Chi-Square value ($X^{2)}$	*p*-value
Gender of participant	Female	121(55.76)	138 (66.35)	44 (80)	303 (63.13)	12.71	0.002
	Male	96(44.24)	70 (33.65)	11 (20)	177 (36.88)		
Age (years)	60-69	172(79.26)	154(74.04)	37(67.27)	363(75.63)	4.666	0.588
	70-79	37(17.05)	45(21.63)	15(27.27)	97(20.21)		
	80-89	7(3.32)	7(3.37)	2(3.64)	16(3.33)		
	90-99	1(0.46)	2(0.96)	1(1.82)	4(0.83)		
Cluster/	Rural	147 (67.75)	154(74.04)	33(60)	334(69.58)	5.697	0.223

Variables	Subgroup of variables	Normal (0-4) n (%)	Mild Depression (5-9) n (%)	Moderate to Severe Depression (10-15) n (%)	Total n (%)	Chi-Square value ($X^{2)}$	*p*-value
Centre	Urban	70(32.26)	54(25.96)	22(40)	146(30.42)		
Highest Level of Education	No formal schooling	83(38.25)	78(37.50)	32(58.18)	193 (40.21)		
	Less than primary school	25(11.52)	25(12.02)	5(9.09)	55(11.46)		
	Primary school						
	Secondary school	34(15.67)	46(22.12)	9(16.36)			
	High school				89(18.54)		
	College/University	26(11.98)	26(12.50)	1(1.82)			
	Postgraduate degree				53(11.04)	17.751	0.123
		34(15.67)	22(10.58)	7(12.73)			
		14(6.45)	11(5.29)	1(1.82)	63(13.13)		
					26(5.42)		
		1(0.46)	0(0.00)	0(0.00)			
					1(0.21)		
Ethnic/racial/cultural subgroup/others	General	65(29.95)	75(36.06)	17(30.90)	157(32.71)		
	OBC	2(0.92)	0(0.00)	0(0.00)	2(0.42)	15.51	0.215
	MOBC	60(27.65)	53(25.48)	15(27.27)	128(26.66)		
	ST	73(33.64)	59(28.37)	20(36.36)	152(31.67)		
	SC	17(7.83)	21(10.10)	3(5.45)	41(8.54)		
Marital status	Never married	6(2.76)	8(3.85)	1(1.82)	15(3.13)		
	Currently married						
	Separated	166(76.50)	146(70.19)	36(65.45)	348(72.50)		
	Widowed					6.489	0.371
		3(1.38)	4(1.92)	0(0.00)	7(1.46)		
		42(19.35)	50(24.04)	18(32.73)	110(22.92)		
Work status	Government employee	5(2.30)	0(0.00)	2(3.64)	7(1.46)		
	Non-government employee	9(4.15)	7(3.37)	4(7.27)	20(4.17)		
	Self-employed						
	Homemaker	63(29.03)	40(19.23)	6(10.91)	109(22.71)		
	Retired	52(23.96)	68(32.69)	20(36.36)	140(29.17)	35.469	0.011
	Unemployed (able to work)	41(18.89)	51(24.52)	4(7.27)	96(20.00)		
	Unemployed (unable to work)	35(16.13)	23(11.06)	10(18.18)	68(14.17)		
		12(5.53)	19(9.13)	9(16.36)	40(8.33)		
Income (per month)	<25000	179 (82.49)	186(89.42)	48(87.27)	413(86.04)		
	25000-49999	22 (10.14)	18(8.65)	6(10.91)	46(9.58)		
	50000-99999						
		11(5.07)	2(0.96)	1(1.82)	14(2.92)	16.024	0.042
	100000-149999						
	150000-200000	5(2.30)	0(0.00)	0(0.00)	5(1.04)		

Variables	Subgroup of variables	Normal (0-4) n (%)	Mild Depression (5-9) n (%)	Moderate to Severe Depression (10-15) n (%)	Total n (%)	Chi-Square value (X^{2})	*p*-value
		0(0.00)	2(0.96)	0(0.00)	2(0.42)		

Discussion

Depression constitutes one of the most common psychiatric disorders frequently observed among the elderly population, with numerous cases remaining undiagnosed, thereby augmenting the risk of developing co-morbid conditions. National studies indicate that mental health conditions affect a significant portion of India's population with a lifetime prevalence of 13.7% and 15% of adults experience mental health issues that require professional intervention [12] . The prevalence is notably higher in urban areas (13.5%) than in rural regions (6.9%). Our study showed high prevalence rate (54.8%) for depression among the elderly. Previous literature corroborates the findings of the present study, revealing comparable results [16,17]. These studies demonstrate a concerning increase in the prevalence of depression over 11 years. Current research categorized depression into mild depression and moderate to severe depression with majority having mild depression while a substantial number also having severe depression. A community-based study conducted in Tezpur, Assam, in 2016 reported 29.4% for mild depression and 7.8% for severe depression [18]. Comparing the two studies, it can be inferred that the number of elderly individuals screened for mild depression has increased significantly in recent years, potentially elevating the risk of progression to severe depression if not diagnosed and managed promptly. Association between the level of depression among elderly residing in the Dibrugarh district. The prevalence of depression was found to be twice as high in women, indicating a significant association, which aligns with findings from a study conducted in Tripura [19]. This disparity may be attributable to factors such as increased psycho-social stress related to the loss of a spouse, limited financial support, longer life expectancy, gender inequality, societal stereotypes concerning widows, and social isolation [20]. Regarding income and work status, a significant association was observed among individuals earning less than 25,000 INR and homemakers, potentially due to challenges related to low income in meeting daily needs, medical expenses, and financial insecurity. A prior study established a significant correlation between low socioeconomic status, unemployment, and depression [21]. In the current investigation, elderly individuals aged 60-69 years and those residing in rural areas exhibited higher prevalence rates of depression. However, no statistically significant association was identified with these variables regarding depression. Screening for depression in the elderly should be incorporated into already available programs, and awareness should be raised among the population on programs like a 24/7 Tele MANAS helpline and Sarathi 104 services.

The prevalence of depression is based on self-report data, which may lead to responder bias. GDS-SF used in the present study is only used for screening purposes and is not an alternative to diagnosis by a clinician.

Conclusion

High prevalence of depression needs to be addressed urgently with focus on women, unemployed, and those hailing from rural areas. Designing communication strategy for these poorly literate vulnerable population needs to be prioritized. Large scale Implementation research has potential to provide comprehensive evidence of geriatric depression supported by regional diversity and culture.

Recommendation

There is a need to do further research exploring the system readiness and effectiveness of different intervention to address such higher prevalence of depression among elderly.

Relevance of the Study

High prevalence of depression among elderly needs to be addressed with focus on those living in rural area, women and with lower socio-economic condition

Authors Contribution

All authors have contributed equally.

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Conflict of Interest

There are no conflicts of interest.

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Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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