Original Research

Whispers of Sorrow Amidst Nature's Embrace: Unveiling the Tale of Geriatric Depression in the Rural Enclaves of Doon Valley, North India

Amrit Sharma[1], Vinod Joseph Abraham[2], Yogesh Arvind Bahurupi[3], Madhu Mohan[4]

[1]MPH Scholar, Department of Community Health, Christian Medical College, Vellore, Tamil Nadu, India, [2]Professor, Department of Community Health, Christian Medical College, Vellore, Tamil Nadu, India, [3]Associate Professor, Department of Community and Family Medicine, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India, [4]Assistant Professor, Department of Community Medicine, Christian Medical College, Chittor Campus, Andhra Pradesh, India.

How to cite this article: Amrit Sharma, Vinod Joseph Abraham, Yogesh Arvind Bahurupi et. al. Whispers of Sorrow Amidst Nature's Embrace: Unveiling the Tale of Geriatric Depression in the Rural Enclaves of Doon Valley, North India. Indian Journal of Public Health Research and Development / Vol. 16 No. 3, July-September 2025.

Abstract

Objective: The study aimed to estimate the prevalence of depression and its associated factors among the geriatric population residing in rural areas of Dehradun, Uttarakhand.

Material and Methods: The survey was done from March to July 2021, interviewed 330 older adult residents of rural areas of Dehradun district. The study used logic regression to analyze the association between the study variables.

Results: The overall prevalence of depression was found to be 27.2%. The analysis showed five variables were significantly associated with geriatric depression, namely living in a nuclear family (adjusted odds ratio (aOR)=5.8), 95% confidence interval (CI)=1.3-25.0), stressful life event in the past 1 year (aOR: 36.9, 95% CI=13.9-98.2), presence of chronic medical illness (aOR=2.9, 95% CI=1.1- 7.3), history of head injury (aOR=3.1, 95% CI=0.9-9.8) and dependency on activities of daily living (aOR=7.5, 95% CI=2.8- 20.6).

Conclusion: The majority of the elderly were found to be mildly depressed, which was associated with non-modifiable risk factors. Interventions that aim to reduce these risk factors and provide appropriate support and treatment for those affected are critical for improving older adults' well-being and overall health.

Keywords: aged, cross-sectional study, depression, prevalence, risk factors

Introduction

Depression affects about 3.8% of people globally, including 5% of adults and 5.7% of those over 60[1]. The world's elderly population is expected to double from 12% in 2015 to 22% in 2050[2], with India's elderly population projected to rise from 8.6% in 2011 to 19% by 2050[3,4]. India is also experiencing an increase in

Corresponding Author: Amrit Sharma, MPH Scholar, Department of Community Health, Christian Medical College, Vellore, Tamil Nadu, India.

E-mail: sharma.amrit169@gmail.com

Submission date: October 5, 2024 **Revision date:** Nov 29, 2024 **Published date:June 7,2025**

non-communicable diseases, with depression being the most common psychiatric illness[5]. Additionally, 67% of India's aging population resides in rural areas[6].

A study done on rural elderly showed 10.68 times more likely to experience severe depression than those in urban areas[7]. Most research in rural India focuses on the southern regions[8,9,10,11,12], with only a few studies in the north[13,14,15]. The research done in the Uttarakhand region has shown vast variations[7,16.]

Early recognition of depression in older adults, can greatly improve mental health and overall quality of life while reducing risks like cognitive decline and chronic illnesses[17,18]. It will also promote health equity by addressing the disparities in mental health services for underserved populations.

We conducted a study to assess depression prevalence and associated factors among the elderly in rural areas of Dehradun district, Uttarakhand.

Materials and Methods

Study Design and Setting

The design of the conducted study was cross-sectional. The research was conducted in the Doiwala block of Dehradun District, Uttarakhand. Data was collected between March 2021 and July 2021. The fieldwork was halted during May-June 2021 due to the second wave of COVID-19 restrictions. However, it was resumed on July 1, 2021.

Study Participants

The study included individuals aged 60 and above, residents for over six months, and those with adequate visual and auditory acuity, excluding those with communication difficulties.

Sample size calculation

The study by Bartwal et al. showed that 17.5% elderly were depressed[16]. Therefore, for the estimation of sample size, the value of prevalence (p) is considered 17.5%. Considering the margin of error, d=5 and design effect=1.5. The sample size (n) calculated using a formula, $n= (1.96)^2 x\ pq/d^2$ was333, approximated to 330.

Sampling strategy

We used a cluster random sampling procedure based on the 2011 Census data. With a sample size of 330, we selected 11 clusters, each with 30 people. We then prepareda list of participants aged 60 years and above for each cluster using the latest electoral rolls. After obtaining their consent, we conducted home visits to interview the participants.

Study Variables

Outcome variable: Depression

Exposure variables: The study examines 19 independent variables, including age group, gender, religion, marital status, socio-economic class, education, employment status, financial dependency, living arrangement, family caregiver, recent stressful life events, tobacco and alcohol use, chronic illness, number of morbidities, family history of mental illness, head injury history, cognitive impairment, and daily living activities.

Data collection instruments

To gather information on the variables, the following four measurement tools were used:

Semi-structured questionnaire: It is divided into three sections that collect information on socio-demographic characteristics, smoking and alcohol consumption, and personal and family medical history.

Hindi version of the Geriatric Depression Scale (GDS-H): This scale contains 30 items in a Yes/No format and focuses on issues related to cognition, loss, and self-image. The scale has been previously used on the Indian elderly population[19]. A score of 0-9 is considered normal, 10-19 indicates mild depression, and 20-30 indicates severe depression[20].

Hindi Mental State Examination (HMSE): This scale consists of 22 items covering questions related to orientation to time and place, memory, attention and concentration, recognition of objects, language function, comprehension, expressive speech, motor functioning, and praxis. The scale has been tested on older adults in the Indian setting[21,22].

Barthel Index Activities of Daily Living (BADL): This is an ordinal scale that measures the degree of

assistance required by an individual on 10 items of mobility and self-care ADL. These include feeding, bathing, grooming, dressing, bowel control, bladder control, toilet use, transfers, mobility, and stairs use[23].

Statistical analysis

The data was analyzed using the Statistical Package of Social Sciences (SPSS) version 24.0 (SPSS Inc., Chicago, USA). The mean and standard deviation were calculated for the numerical variables. The prevalence of depression was presented as a proportion. Binary logistic regression was conducted to explain the measure of association using odds ratio, 95% confidence intervals, and p-values.

Ethical approval

The project has been approved by the Institutional Review Board (IRB), Christian Medical College, Vellore, India (IRB minutes number: 13763 dated 27.01.2021). Written informed consent was obtained from all the study participants.

Results

Descriptive Statistics

The study involved 330 participants, with 309 completing interviews, with a response rate of 93.6%. The arithmetic means (standard deviation [±SD]) of GDS-H scores, HMSE scores, and Barthel index scores were 8.34 (±5.5), 24.87 (± 4.2), and 94.05 (± 9.2), respectively. The majority (51.5%) were aged 60-69, with equal participation from both genders (Table 1).

Table 1: Distribution of socio-demographic characteristics of the study participants, n=309

Variables	Category	Frequency	Percentage
Age group	60-69	159	51.5
	70-79	108	35
	≥80	42	13.6
Gender	Male	157	50.8
	Female	152	49.2
Religion	Hindu	271	87.7
	Muslim	26	8.4
	Sikh	12	3.9
	Others	-	-
Marital status	Never Married	-	-
	Married	155	50.2
	Widowed/Separated	154	49.8
Family type	Nuclear	44	14.2
	Joint	251	81.2
	Extended	14	4.5
Socio-economic class (Modified BG Prasad Scale)	Class I	133	43
	Class II	132	42.7
	Class III	40	12.9
	Class IV	4	1.3
	Class V	-	-
Educational Qualification	No formal education	191	61.8
	Primary	70	22.7
	Secondary	30	9.7
	≥ Higher Secondary	18	5.8
Working Status	Not Working	277	89.6
	Working	32	10.4

Continue.....

Financial Dependency	Dependent	71	23
	Partially Dependent	204	66
	Independent	34	11
Living arrangement	Alone	8	2.6
	With spouse	25	8.1
	With children	142	46
	With Spouse and Children	127	41.1
	Siblings/Relatives	7	2.3
Care given by the family	Never	29	9.4
	Sometimes	129	41.7
	Always	151	48.9
Stressful life events in the past 1 year	No	224	72.5
	Yes	85	27.5

Behavioral Measures and Medical History

The study revealed that27.5% were current regular users of some form of tobacco product. Correspondingly, most alcohol drinkers were found to be occasional consumers constituting 24.6% of the total sample.

The present study participants had a high percentage of comorbidities (59.2%). Furthermore, a history of head injury was present among 13.9%. In addition, 4.2% of the elderly had a family member with a mental illness (Table 2).

Table 2: Distribution of Behavioral Measures and Medical History, n=309

Variable	Category	Frequency	Percentage
Tobacco consumption	Current regular user	85	27.5
	Past user	57	18.4
	Current occasional user	6	1.9
	Non-user	161	52.1
Alcohol intake	Current regular drinker	-	-
	Past drinker	35	11.3
	Current occasional drinker	76	24.6
	Non-Drinker	198	64.1
Comorbidity	No	126	40.8
	≥ 3	27	8.7
	<3	156	50.5
Family member with mental illness	No	296	95.8
	Yes	13	4.2
History of head injury	No	266	86.1
	Yes	43	13.9

Cognitive Impairment

Impaired cognitive function was found among 63 (20.3%) participants. Further, it was estimated that the majority of the elderly 37 (58.7%) had mild impairment, while only 3 (4.7%) older adults suffered severe cognitive impairment (Figure 1).

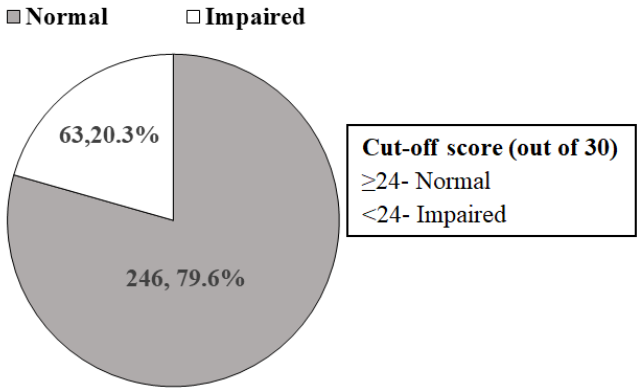

Figure 1: Distribution of cognitive impairment among study participants, n=309

Activities of Daily Living

The present study found that distribution was nearly equal in both dependents (48.8%, n=151) and independent (51.1%, n=158) categories. Further, the dependent elderly required assistance mostly for climbing stairs, mobility, and feeding.

Prevalence of Depression

The overall prevalence of depression was 27.2% (n=84), with most elderly individuals experiencing mild depression (76.1%, n=64)(Table 3).

Table 3: Distribution of participants based on Geriatric Depression Scale scores, n=309

Category	Frequency (%)	Cut-off score out of 30
Normal	225 (72.8)	<10
Depressed	84 (27.2)	10-30
Mild	64 (76.2)	10-19
Severe	20 (23.8)	20-30

Multivariate Analysis

The multivariate model was formed after including all the significant independent variables from the bivariate analysis (Table 4).

Table 4: Multivariate Analysis showing the factors associated with depression

Variables		Depression				aOR	95% CI	P-value
Category		Present		Absent				
		Nos.	%	Nos.	%			
Age group	≥70	53	35.3	97	64.7	0.9	0.4- 2.4	0.91
	60-69	31	19.5	128	80.5			
Gender	Female	50	32.9	102	67.1	1.4	0.4 -5.3	0.64
	Male	34	21.7	123	78.3			
Marital status	Never Married/ Widowed/Separated	56	36.3	98	63.7	2.9	0.6- 14.4	0.20
	Married	28	18	127	82			
Family type	Nuclear	21	47.7	23	52.3	5.8	1.3-25.0	0.02*
	Joint/Extended	63	23.8	202	76.2			
Socio-economic class (modified BG prasad scale)	Class III/ IV/V	21	47.7	23	52.3	0.7	0.2-2.8	0.74
	Class I/II	63	23.8	202	76.2			

Continue.....

Educational qualification	No formal Education	60	31.4	131	68.6	0.7	0.3-2.0	0.54
	≥Primary	24	20.3	94	79.7			
Living arrangement	Others	65	35.7	117	65.3	0.5	0.1- 2.8	0.57
	With spouse and children	19	15	108	85			
Care given by the family	Never/sometimes	67	42.4	91	57.6	1.9	0.8- 4.7	0.23
	Always	17	11.3	134	88.7			
Stressful life events past 1 year	Yes	66	77.6	19	22.4	36.9	13.9-98.2	<0.001*
	No	18	8	206	92			
Alcohol intake	Ever consumed	21	18.9	90	81.1	1.0	0.3- 4.1	0.91
	Never consumed	63	31.8	135	68.2			
Chronic medical illness	Yes	67	36.6	116	63.4	2.9	1.1- 7.3	0.03*
	No	127	13.5	109	86.5			
History of head injury	Yes	26	60.5	17	39.5	3.1	0.9- 9.8	0.05*
	No	58	21.8	208	78.2			
Family member with mental illness	Yes	8	61.5	5	38.5	0.3	0.5-2.3	0.30
	No	76	25.7	220	74.3			
Cognitive impairment (HMSE)	Impaired	27	42.9	36	57.1	1.8	0.7-5.1	0.24
	Normal	57	23.2	189	76.8			
Activities of daily living (BADL)	Dependent	69	45.7	82	54.3	7.5	2.8- 20.6	<0.001*
	Independent	15	9.5	143	90.5			

HMSE= Hindi mental state examination, BADL=Barthel index activities of daily living, aOR=Adjusted odds ratio, CI=Confidence interval, *Significance level at α=0.05

Discussion

Our research has done a comprehensive exploration of depression prevalence and its associated factors among the geriatric population residing in rural areas.

Prevalence of Depression

A survey of 309 participants revealed a depression prevalence of 27.2%, similar to previous studies in the Indian state of Chhattisgarh[24] and countries like Thailand, Vietnam, and Malaysia[25,26,27], emphasizing the universality of geriatric depression and the need for global strategies.

Studies in India and other Asian nations show higher prevalence rates of geriatric depression[10,13,28,29,30], but a select few have lower rates[16,31,32]. Moreover, it is intriguing to observe that researchers in Western countries consistently report a lower burden of depression among older adults[33,34], highlighting the impact of cultural and contextual factors on mental health outcomes.

Risk Factors of Depression

The analysis unveiled several compelling risk factors associated with depression in later life. Notably, elderly individuals living in nuclear families demonstrated a 5.8 times higher chance of depression. This finding corroborates earlier research conducted in rural India, which identified a 4.2-fold elevated risk for older people living in similar familial arrangements[35]. Family dynamics significantly impact the mental well-being of the elderly, emphasizing the need for stronger social support to reduce depression risk.

Stressful life events in the past year are a strong predictor of depression, with individuals who have gone through such experiences being 36.9 times more likely to suffer from this condition[36]. This highlights the urgent need for tailored psychosocial support and intervention strategies forelderly individuals in rural areas.

Our study found a higher likelihood of depression in individuals with chronic comorbidities, emphasizing the need for holistic healthcare approaches. This aligns with observations from other investigations where older adults contending with one or more comorbidities faced a 4.34-fold heightened risk of depression[12].

A history of head injury has been identified as a significant risk factor for depression, particularly among the elderly supported by other research[37]. This emphasizes the need for early intervention and highlights the impact of past experiences on later-life mental health.

Dependency on activities of daily living also exhibited a substantial impact on the risk of depression. Our findings mirror those of previous cross-sectional surveys[12,38], emphasizing the critical importance of preserving independence in daily life as a cornerstone of healthy aging and mental well-being.

Limitations

Our study has a few limitations. The cross-sectional design prevents establishing cause-effect relationships, and the study was conducted during the second wave of SARS-CoV-2, potentially leading to an overestimation of prevalence. The small sample size limits generalization, and the depression scale used is only for screening. Finally, there is potential for information bias as participants may not have disclosed accurate information during the interview.

Conclusion

The study's results emphasize the urgent need to address depression among older adults, highlighting the high prevalence of mild depression in both males and females. This underscores the importance of early identification and intervention. The non-modifiable nature of many risk factors associated with depression among older adults necessitates a comprehensive approach to improving their health and well-being. Early interventions addressing these factors may help improve their physical and mental health, promoting overall well-being.

References

1. Institute of Health Metrics and Evaluation. Global Health Data Exchange (GHDx).http://ghdx.healthdata.org/gbd-results-tool?params=gbd-api2019permalink/d780dffbe8a381b25e1416884959e88b.Accessed May 1, 2021.
2. Mehra A, Grover S, Chakrabarti S, Avasthi A. Symptom profile of depression in elderly: Is assessment with geriatric depression rating scale enough? J Geriatr Ment Health2017;4:18–25.
3. Pilania M, Yadav V, Bairwa M, Behera P, Gupta SD, Khurana H et al. Prevalence of depression among the elderly (60 years and above) population in India, 1997–2016: a systematic review and meta-analysis. BMC Public Health2019;19(1):832.
4. Agarwal A, Lubet A, Mitgangxc E, Mohanty S, Bloom DE. Population Aging in India: Facts, Issues, and Options August 2016.https://ftp.iza.org/dp10162.pdf. Accessed May 5, 2021.
5. Mondal, S., Van Belle, S. India's NCD strategy in the SDG era: are there early signs of a paradigm shift? Global Health2018;14:39.doi:10.1186/s12992-018-0357-6.
6. Ministry of Statistics &Programme Implementation, Government of India; National Sample Survey Office. Social consumption: Health, NSS 75th round: Jul 2017 – June 2018. New Delhi: http://mospi.nic.in/unit-level-data-report-nss-75th-round-july-2017-june-2018-schedule-250socialconsumption-health. Accessed May 6, 2021.
7. Tiwari K, Aggarwal P, Kakkar R, Tiwari A. Moving Out of Shadows: Depression among the Elderly in Dehradun District of Uttarakhand, India. J. Lifestyle Med2020;10(2):102-9.
8. Kavithai P, Anandaraj R, Bhuvaneswary S, Prakash M. A cross-sectional study on screening for depression among elderly in rural areas of Puducherry, India. Int J Res Med Sci2018;7(1):46-51.
9. Akila GV, Arvind BA, Isaac A. Comparative assessment of the psychosocial status of elderly in urban and rural areas, Karnataka, India. J Family Med Prim Care2019;8(9):2870-76.
10. Vincent V, Shanmugam J, Duraisamy S, Loganathan P, Ganeshkumar V, Balakrishnan V. Prevalence of depression among the elderly population in rural South India. Int J Community Med Public Health2020;7(6):2377-80. Doi: 10.18203/2394-6040.ijcmph20202502.

11. Karthikeyan K., Sriandaal V, Tamilarasan M. Prevalence and Determinants of Depression among the Elderly in Rural Field Practice Area of a Medical College in Perambalur District, Tamil Nadu: A Cross-Sectional Study. Indian J Public Health Res Dev2019;10(11):457-62.
12. Thilak SA, Sarada AK, Neloopant SA. Prevalence and factors associated with depression among the elderly in rural areas of Kannur, North Kerala, India-a cross-sectional study. Int J Community Med Public Health2016;3(8):1986-1991. Doi: 10.18203/2394-6040.ijcmph20162184.
13. Sahni B, Bala K, Kumar T, Narangyal A. Prevalence and determinants of geriatric depression in North India: A cross-sectional study. J Family Med Prim Care2020;9(5):2332-36.
14. Patel M, Bhardwaj P, Nebhinani N, Goel AD, Patel K. Prevalence of psychiatric disorders among older adults in Jodhpur and stakeholders perspective on responsive health system. J Family Med Prim Care 2020;9(2):714-720. doi: 10.4103/jfmpc.jfmpc_1016_19.
15. Behera P, Sharan P, Mishra AK, Nongkynrih B, Kant S, Gupta SK. Prevalence and determinants of depression among elderly persons in a rural community from northern India. The Natl Med J India2016;29(3):129-35.
16. Bartwal J, Rawat CS, Awasthi S. Rate of Depressive Symptoms and Associated Risk Factors Among the Elderly in Haldwani Block of Nainital District, Uttarakhand, India. Int J NutrPharmacol Neurol Dis 2017;7(2):34-38.doi: 10.4103/ijnpnd.ijnpnd_76_16.
17. Debnath A, Sandooja C, Kishore J (March 09, 2023) Depression and Associated Factors Among Older Adults in a North Indian State: A Cross-Sectional Study. Cureus 15(3): e35962. doi:10.7759/cureus.35962
18. Voros, V., Fekete, S., Tenyi, T. *et al*. Untreated depressive symptoms significantly worsen quality of life in old age and may lead to the misdiagnosis of dementia: a cross-sectional study. *Ann Gen Psychiatry* **19**, 52 (2020). https://doi.org/10.1186/s12991-020-00302-6.
19. Mehra A, Agarwal A, Bashar M, Grover S. Evaluation of Psychometric Properties of Hindi Versions of Geriatric Depression Scale and Patient Health Questionnaire in Older Adults. Indian J Psychol Med. 2021 Jul;43(4):319-324. doi: 10.1177/02537176211022159.
20. Alam MN, Singh SP, Gupta VS, Bhawnani D, Soni GP. A study on mental health status and its determinants in elderly people of Raipur city, Chhattisgarh, India. Int J Community Med Public Health2016;3(11):2982-2986. doi: 10.18203/2394-6040.ijcmph20163499.
21. Raina SK, Raina S, Chander V, Grover A, Singh S, Bhardwaj A. Is dementia differentially distributed? A study on the prevalence of dementia in migrant, urban, rural, and tribal elderly population of himalayan region in northern India. N Am J Med Sci. 2014 Apr;6(4):172-7. doi: 10.4103/1947-2714.131243
22. Haseen F, Prasartkul P. Predictors of depression among older people living in rural areas of Thailand. Bangladesh Med Res Counc Bull 2011;37(2):51-56.
23. Vu HTT, Lin V, Pham T, Pham TL, Nguyen AT, Nguyen HT et al., Determining Risk for Depression among Older People Residing in Vietnamese Rural Settings. Int J Environ Res Public Health 2019;16(15):2654.
24. Abdul Manaf MR, Mustafa M, Abdul Rahman MR, Yusof KH, Abd Aziz NA. Factors Influencing the Prevalence of Mental Health Problems among Malay Elderly Residing in a Rural Community: A Cross-Sectional Study. PLoS One2016;11(6):e0156937.
25. Manandhar, K., Risal, A., Shrestha, O, Manandhar N , Kunwar D, Kojuet R et al. Prevalence of geriatric depression in the Kavre district, Nepal: Findings from a cross sectional community survey. BMC Psychiatry2019;19:271. doi: 10.1186/s12888-019-2258-5.
26. Wahlin, Å, Palmer, K., Sternäng, O., Hamadani, J., & Kabir, Z. (2015). Prevalence of depressive symptoms and suicidal thoughts among elderly persons in rural Bangladesh. Int Psychogeriatr. 2015;27(12):1999-2008.
27. Roy PK, Saya GK, Ulaganeethi R, Jayaram S, Kumar SS. Prevalence and association of depressive symptoms with spiritual intelligence among older adults: A community-based study in rural Puducherry, South India. Asian J Psychiatr2021;55:102510.
28. Gedam RA, Shidam UG. Depression as an emerging public health problem in rural India: a case study of a geriatric population in a tribal region of eastern Maharashtra, India. Global journal of medicine and public health2020;9(3).
29. Sharma A et al. Assessment of Risk Factors and Prevalence of Depression among Elderly Subjects in a Rural Community. National Journal of Community Medicine2018;9(4):283-28.
30. Philip D. St John, Audrey A. Blandford, Depressive symptoms among older adults in urban and rural areas, Int. J. Geriatr. Psychiatry2006;21(12):1175-1180.
31. MV, Préville M, Berbiche D, Brassard J. Pattern of Change of Depressive Disorder over a OneYear Period among Community-Dwelling Older Adults in Québec. Depress Res Treat2013; 2013:451708. doi: 10.1155/2013/451708.

32. Buvneshkumar M, John KR, Logaraj M. A study on prevalence of depression and associated risk factors among elderly in a rural block of Tamil Nadu. Indian J Public Health2018;62(2):89- 94.doi: 10.4103/ijph.IJPH_33_17.

33. Nakulan A, Sumesh TP, Kumar S, Rejani PP, Shaji KS. Prevalence and risk factors for depression among community resident older people in Kerala. Indian J Psychiatry2015; 57(3):262-266.

34. A. P. Rajkumar et al. Nature, prevalence and factors associated with depression among the elderly in a rural south Indian community International. Psychogeriatrics2009;21(2):372–378.

35. 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 Public Health2015;59(1):3-8.doi: 10.4103/0019-557X.152845.

36. Nakulan A, Sumesh TP, Kumar S, Rejani PP, Shaji KS. Prevalence and risk factors fordepression among community resident older people in Kerala. Indian J Psychiatry. 2015;57(3):262-266. doi:10.4103/0019-5545.166640

37. 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 Indiancommunity. Int Psychogeriatr. 2009; 21(2): 372-378.

38. Sengupta P, Benjamin AI. Prevalence of depression and associated risk factors among the elderlyin urban and rural field practice areas of a tertiary care institution in Ludhiana. Indian J PublicHealth 2015; 59:3-8.