

## **Manuscript for Book Chapter**

**Depression and associated risk factors among geriatrics population in field practice areas of tertiary care institution in Unnao district of Uttar Pradesh: A Cross sectional study**

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### **Abstract:**

**Background:** Ageing is inevitable for any human being. According to census 2011, the population of over 60 years of age in India accounted 8% of the total population, as of 2016 it is 8.6% which is projected to increase to 20% by 2050.

**Aim & Objective:** To estimate the prevalence of depression among geriatrics age group and to identify factors associated with depression among geriatrics age group.

**Material & Methods:** It was a cross-sectional study conducted between April 2022 and September 2022. Total sample size was 138. Number of subjects to be sampled from each village was calculated by probability proportion to size (PPS). Finally using simple random sampling method, participants were selected from each village

**Results:** The majority of the participants were in between 60 and 65 years old (63.8% of the total), next 66 to 75 years old (26.8% of the total), and finally over 75 years old (9.4% of the total). The mean age of participants in the study was  $65.06 \pm 6.60$  years. The proportion of male participants in the study was 47.1%, and the proportion of female participants was 52.9%. In present study, it was found that 65.9% had depression among the geriatrics population.

**Conclusion:** This study also portrays significant association with age group, marital status, occupation, type of family and smoking history among depression among geriatrics.

**Key words:** Geriatrics, Depression, Prevalence, GDS 15 Scale, Rural

**Introduction:** Ageing is inevitable for any human being. According to census 2011, the population of over 60 years of age in India accounted 8% of the total population, as of 2016 it is 8.6% which is projected to increase to 20% by 2050.<sup>1-3</sup> There are around 66–73% of India's old population that are illiterate, reside in rural areas, and are economically dependent on others.<sup>4</sup> Due to the ageing process, along with physical health, mental well-being can also be at stake. An active healthy mind is important for a healthy existence. Disorders of mental health like anxiety and depression can be corrected if intervened at right time, especially for the elderly community who already might have few physical health problems. On an average 15% of elderly suffer from different presentations of mental disorder. Depression is the most common of these mental disorders. In India, 11.6% to 31.1% of people have depression, while 4.7% to 16% of people around the world do.<sup>5</sup> Depression leads to loneliness, fear of death, increase in use of health care services, self-pity, impairment in daily activities, suicidal thoughts and so on.<sup>6,7</sup> Some elderly tend to consider mild symptoms of depression as a natural consequence of ageing and tend to overlook those symptoms leading to major depressive syndrome. There are studies indicating neglect and under-treatment of elderly suffering from depression.<sup>8</sup> This study was undertaken because there was not enough information about depression in geriatrics age group in the field practice area of tertiary care institution in Unnao district of Uttar Pradesh.

**Aim & Objective:** To estimate the prevalence of depression among geriatrics age group and to identify factors associated with depression among geriatrics age group.

**Materials and Methods:** A community based cross sectional study that took place in the field practice areas of tertiary care institutions in the Unnao district of Uttar Pradesh between April 2022 and September 2022. The study lasted for a total of six months. The study population include geriatrics population ( $\geq 60$  years old)<sup>9</sup> consisting of 60-65 year is young old, 66-75 year is old old, more than 75 is oldest and more than 100 is Cenetarian residents of the field practice areas of Rural Health Training Centre, Department of Community Medicine covering a population of about 22,500 identified through house-to-house survey. A study conducted on prevalence of depression in elderly population in the southern part of Punjab by Goyal A, Kajal KS. Sample size was calculated using formula  $(N) = (Z_{\alpha/2})^2 \frac{p \times q}{L^2}$  where 'p' to be 75% (P)<sup>10</sup> and an allowable error of 10% at 5% level of significance. Considering non response rate of 7.5%, the total sample size of 138 was taken for the study. In stage I, from 14 villages which come under our field practice areas of Rural Health Training Centre, 5 villages were selected randomly by lots. In stage II, population count of geriatrics  $\geq 60$  years in the 5 selected villages was obtained from the data base of our rural health training centre. This formed the sampling frame for each of the 5 selected villages. Number of subjects to be sampled from each village was calculated by probability proportion to size (PPS). Finally using simple random sampling method, participants were selected from each village (**Table 1**). House to house survey was conducted, after obtaining permission from the village head. A semi-structured questionnaire was used for data collection. Prior to the initiation of the research, approval from the Institutional Ethics Committee was obtained. After explaining the study's objective to the respondents, their informed consent was taken. Consenting respondents were surveyed using a pre-tested questionnaire that contained a variety of socio-demographic factors. The consent form and evaluation tools were translated into Hindi for the aim of ensuring the translation's accuracy. The interview was performed in Hindi, a language the subject was comfortable with. The Geriatric

Depression Scale (GDS), a 15-item self-report questionnaire used as a primary screening tool for depression in the elderly, was used to measure depression.<sup>11</sup> Those who declined to take part remained absent during the research periods and were unreachable on two separate occasions and People with neurological or psychological disorders were also not included. The information gathered was analysed with SPSS version 25.0 and shown as frequencies and percentages. Chi square was used to see how strongly knowledge and practice levels were linked to different risk factors. If the p value was less than 0.05, it was thought to be statistically significant.

## **Result:**

**Table 2- Socio-demographic profile of Geriatrics age group population:** Sample size of 138 study participants were taken for the study. The majority of the participants were in between 60 and 65 years old (63.8% of the total), next 66 to 75 years old (26.8% of the total), and finally over 75 years old (9.4% of the total). The mean age of participants in the study was  $65.06 \pm 6.60$  years. The proportion of male participants in the study was 47.1%, and the proportion of female participants was 52.9%. Among participants, majority (81.9%) were married followed by 15.9% were widow followed by 2.2% were unmarried. Regarding education level, 15.9% were illiterate, 23.2% had primary education, 24.6% had completed up to secondary level of education, 23.2% were under graduate level and 13% had post graduate level of education. Majority (60.1%) of the respondent were unemployed followed by 39.9% were employed. Study revealed that 51.4% of the study participants were from nuclear family. As per Modified BG Prasad Classification, the per capita income of the respondents in Class I were 13%, Class II were 15.2%, Class III were 21.7%, Class IV were 41.3%, Class V were 8.7%.

**Table 3- Characteristics of medical history:** It showed the characteristics of medical history in which 56.5% had non vegetarian diet followed by 43.5 were vegetarian diet. Among participants, 17.4% had history of smoking, 20.3% had history of alcohol consumption, 0.7% had past history of childhood trauma, 5.8% had past history of head injury and 30.4% had past surgical history. As per the history of present illness, hypertensive were 26.8%, hypertensive and diabetes mellitus were 10.9%, diabetes mellitus were 15.9%, Tuberculosis were 2.2%, Asthma and epilepsy were 0.7% among study participants where as 42.8% had no history of present illness. As per the history of past illness, hypertensive were 18.1%, hypertensive and diabetes mellitus were 8%, diabetes mellitus were 12.3%, Tuberculosis were 2.2%, Asthma and epilepsy were 0.7% among study participants. **Table 4- Prevalence of depression among geriatric population:** It showed the prevalence of depression among geriatrics, it was found that 65.9% had depression and among them 47.8% had mild depression, 13% had moderate depression and 5.1% had severe depression. **Table 5- Association of Sub-variable with depression among geriatrics:** Association of Sub variable with depression among geriatrics, it was significantly associated with age group (P=0.012), marital status (P=0.009), occupation (P=0.000), type of family (P=0.014), Smoking history (P=0.003) where as sex (P=0.136), education (P=0.076), Per capita income(P=0.960), Diet (P=0.196), Alcohol history (P=0.836), Past history of childhood trauma (P=0.471), Past history of head injury (P=0.185), Past surgical history (P=0.197) were not significant.

**Discussion:** The prevalence in the current study is 65.9%, which is only the very beginning of the problem. The current finding is consistent with prior national research that found that between 13% and 25% of senior Indians had depressive disorders at any given time.<sup>12,13,14</sup> Numerous studies conducted in metropolitan areas of India found a prevalence that was comparatively lower than the current figure.<sup>15,16</sup> However, contrary to the present data, urban dwellers were also reported to have a lower prevalence.<sup>17</sup> In the metropolitan slums of Mumbai<sup>18</sup> and Punjab, where it was estimated to reach 77%, the frequency has been observed to be quite high.<sup>19</sup> The prevalence indicated by numerous research conducted in urban settings has shown significant heterogeneity. This may be because some studies were conducted in urban slums or in areas of low socioeconomic status with fluctuating socio-demographic and cultural characteristics. The current investigation was conducted outside of slums. Adoption of varied methodologies, defining criteria, and screening tools used in various researches are other factors that may contribute to these large variances. However, compared to the study conducted in Assam's rural areas, the prevalence seen in the current study is higher.<sup>20</sup> Sanjay et al. in Parvithapura, Bengaluru locality 2013-2014<sup>21</sup> showed prevalence of depression to be 36% using GDS15. The current study showed the prevalence of depression among the elderly to be 65.9%. Similar findings of lower prevalence were found in studies done by Sundru and Goru in Visakhapatnam.<sup>22</sup> A study done by Sinha et al in Sembakkam village, Kancheepuram district in 2012 revealed that the geriatric depression was 42.7%, which was lower than our study.<sup>23</sup> The geriatric depression estimate was highest in India (27.4%), followed by Russia (15.6%), Mexico (23.7%), South Africa (6.4%), Ghana (11.0%), and China (2.2%), according to a study conducted by the WHO on global ageing and adult health wave 1 (2007–2010) to assess the prevalence of depression among older aged 50 and older in South Africa China, Russian Federation, India, Mexico, and Ghana.<sup>24</sup> Of the 65.9% of people in our study who had depression, 47.8% had mild depression. This is similar to what Dumbray et al. found, which was that 29% of people with depression had mild depression.<sup>25</sup> Similar study done in a tertiary hospital in Karachi found that 19.5% of people aged 65 and older were depressed.<sup>26</sup>

**Conclusion:** The overall prevalence of depression among geriatric population was 65.9% in present study. As per assessment of depression among geriatrics, 47.8% had mild, 13% had moderate and 5.1% had severe depression. This study also portrays significant association with age group, marital status, occupation, type of family and smoking history among depression among geriatrics.

**Recommendation:** This type of depression among elderly can be reduced by encouraging them to participate in the social activities by forming geriatrics happiness centre at block and district level, Geriatric Health Centre and continuous health monitoring. Due to time constraints, we have taken less number of study participants so there could have been more sample size in this particular study

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**Ethical Approval:** the study was approved by the Institutional Ethics Committee

**Competing Interests:** No competing interests exist

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**Table 1: Methodology of Two stage sampling (Probability proportion to size)**

S.No	Village Name	Total Population	Number of Elderly $\geq 60$ Years	PPS= $N/X \times (n1-n5)$	Sample selected from each village by PPS
1	Tejikheda	421	43	$138/496 \times 43$	12
2	Kalakheda	138	11	$138/496 \times 11$	3
3	Kantha	3401	354	$138/496 \times 354$	98
4	Mahipatkhedha	539	53	$138/496 \times 53$	15
5	Gokulkhedha	184	35	$138/496 \times 35$	10
	Total	4683	496		138

**Table 2- Socio-demographic profile of Geriatrics age group population:**

<b>S.No</b>	<b>Variable</b>	<b>Sub-variable</b>	<b>Frequency (N)</b>	<b>Percentage (%)</b>
1	Age group	60-65 Years	88	63.8
		66-75 Years	37	26.8
		>75 Years	13	9.4
2	Sex	Male	65	47.1
		Female	73	52.9
3	Marital status	Unmarried	3	2.2
		Married	113	81.9
		Widow	22	15.9
4	Education	Illiterate	22	15.9
		Primary	32	23.2
		Secondary	34	24.6
		UG	32	23.2
		PG	18	13
5	Occupation	Unemployed	83	60.1
		Employed	55	39.9
6	Type of Family	Nuclear	71	51.4
		Joint	65	47.1
		Three Generation	2	1.4
7	Per Capita Income (Modified BG Prasad Classification 2021)	Class I	18	13
		Class II	21	15.2
		Class III	30	21.7
		Class IV	57	41.3
		Class V	12	8.7



**Table 3- Characteristics of Medical History:**

<b>S.No</b>	<b>Variable</b>	<b>Sub-variable</b>	<b>Frequency (N)</b>	<b>Percentage (%)</b>
1	Dietary habit	Veg	60	43.5
		Non Veg	78	56.5
2	Smoking history	Yes	24	17.4
		No	114	82.6
3	Alcohol history	Yes	28	20.3
		No	110	79.7
4	Past history of childhood trauma	Yes	1	0.7
		No	137	99.3
5	Past history of Head Injury	Yes	8	5.8
		No	130	94.2
6	Past Surgical history	Yes	42	30.4
		No	96	69.6
7	History of Present Illness	Hypertension	37	26.8
		Hypertension & Diabetes Mellitus	15	10.9
		Diabetes Mellitus	22	15.9
		Tuberculosis	3	2.2
		Asthma	1	0.7
		Epilepsy	1	0.7
		No history of Present Illness	59	42.8
8	History of Past Illness	Hypertension	25	18.1
		Hypertension & Diabetes Mellitus	11	8.0
		Diabetes Mellitus	17	12.3
		Tuberculosis	3	2.2
		Asthma	1	0.7
		Epilepsy	1	0.7
		No history of Past Illness	80	58.0

**Table 4- Prevalence of depression among geriatric population:**

<b>S.No</b>	<b>Variable</b>	<b>Sub-variable</b>	<b>Frequency (N)</b>	<b>Percentage (%)</b>
1	Depression	Yes	91	65.9
		No	47	34.1
2	Assessment of Depression	Mild	66	47.8
		Moderate	18	13
		Severe	7	5.1

**Table 5- Association of Sub-variable with depression among geriatrics:**

S.No	Variable	Sub-variable	Yes	No	Chi-Square (X <sup>2</sup> )	P Value (<0.05)
1	Age group	60-65 Years	52	36	11.79	<b>0.012</b>
		66-75 Years	26	11		
		>75 Years	13	0		
2	Sex	Male	44	18	2.217	0.136
		Female	47	29		
3	Marital status	Unmarried	3	0	9.328	<b>0.009</b>
		Married	68	45		
		Widow	20	2		
4	Education	Illiterate	16	6	8.456	0.076
		Primary	25	7		
		Secondary	22	12		
		Under Graduate	21	11		
		Post Graduate	7	11		
5	Occupation	Unemployed	65	18	14.192	<b>0.000</b>
		Employed	26	29		
6	Type of Family	Nuclear	39	32	8.597	<b>0.014</b>
		Joint	51	14		
		Three Generation	1	1		
7	Per Capita Income (Modified BG Prasad Classification 2021)	Class I	12	6	0.629	0.960
		Class II	13	8		
		Class III	20	10		
		Class IV	39	18		
		Class V	7	5		
8	Diet	Veg	36	24	1.669	0.196
		Non Veg	55	23		
9	Smoking history	Yes	22	2	8.561	<b>0.003</b>
		No	69	45		
10	Alcohol history	Yes	18	10	0.043	0.836
		No	73	37		

11	Past history of childhood trauma	Yes	1	0	0.520	0.471
		No	90	47		
12	Past history of Head Injury	Yes	7	1	1.757	0.185
		No	84	46		
13	Past Surgical history	Yes	31	11	1.664	0.197
		No	60	36		