

## Original Research Article

# PREVALENCE OF DEPRESSION AMONG ELDERLY POPULATION IN A RURAL AREA OF DISTRICT NUH HARYANA

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## ABSTRACT

**Background:** The prevalence of depression was found to be ~34%. Depression was estimated to be more prevalent among financially dependent individuals. (i.e., 56%). Similarly, a higher prevalence of depression was also found in those who lived, were unmarried, or were illiterate. **Objective:** To estimate the prevalence of depression among the elderly population in a rural area of Nuh district, Haryana.

**Materials and Methods:** This observational, cross-sectional study was conducted among elderly individuals aged 60 years and above of both sexes residing in the rural field practice area of Rural Health Training Centre (RHTC) under the Department of Community Medicine, SHKM Government Medical College (GMC), Nalhar, Nuh, Haryana. Duration of study was 12 months from the date of commencement.

**Results:** The majority of participants (48.09%) were aged between 60–70 years, and only 1.44% were above 90 years. Most of the study population (68.09%) was illiterate. Prevalence of depression among the elderly population in rural area of district Nuh is 24.8% (95% CI 19.1% - 31.2%), with mild depression at 17.1% (95% CI 12.3% - 22.9%) and severe depression at 7.6% (95% CI 4.4% - 12.1%). The prevalence of depression among elderly in the area is very high.

**Conclusion:** The study revealed a significant prevalence of depression among the elderly in rural Nuh, Haryana. It underscores the urgent need for community-based mental health awareness programs to reduce stigma and promote early diagnosis.

**Keywords:** Prevalence, Depression, Elderly Population, Rural Area.

## INTRODUCTION

Depression is a common yet serious mental health disorder. It is characterized by persistent feelings of sadness, loss of interest or pleasure in daily activities, and a range of emotional and physical symptoms that can significantly impair an individual's ability to function. According to the World Health Organization (WHO), depression involves a depressed mood, decreased energy, and a reduction in self-esteem and confidence, lasting for at least two weeks. It often includes symptoms such as disturbed sleep, changes in appetite, fatigue,

difficulty concentrating, and thoughts of self-harm or suicide.<sup>[1]</sup>

Depression can range in severity from mild to severe. The condition can manifest as major depressive disorder, dysthymia (persistent depressive disorder), or depression associated with other medical or psychiatric conditions. Depression is frequently episodic. The episodes may vary in duration and intensity. In some cases, depression develops into a chronic disorder.<sup>[2]</sup>

In the elderly population, symptoms of depression might be overlooked or misattributed to the changes in aging or other physical health issues, for example,

unexplained aches and pains, cognitive impairments, or social withdrawal. This makes the recognition and diagnosis of depression in older adults more complex, often leading to underdiagnosis and undertreatment.<sup>[3]</sup>

Depression in elderly has been extensively studied in community as well as hospital setting. Research has also been conducted among residents. The methodologies of studies on depression comprised house to house surveys and random sampling and covered both rural and urban settings. This variety in methodology has facilitated a more comprehensive understanding of depression among elderly.<sup>[4]</sup>

Amongst other criteria for diagnosing depression like ICD-10, Patient Health Questionnaire-9 (PHQ-9), and the Zung Depression Scale, the Geriatric Depression Scale (GDS) is one of the most commonly used tool for assessing depression among the elderly. The use of multiple assessment tools emphasised the complexity of the health problem and the variability in diagnosing depression in elderly. In most of the studies elderly had been defined as individuals of age 60 years and more. In the available studies, the prevalence of depression among elderly varied widely, and ranged from ~9% to ~62%. This variation was also attributed to different research methodologies, population and settings.<sup>[5,6]</sup>

Depression among the elderly had become a major global health concern, with prevalence rates ranging from 1% to 20%. Point prevalence of depression among elderly population in India had been found to be ranging from 13% to 25% in various community based studies. Health professionals mainly focused on management of the more visible wellbeing issues, like those related to the physical health e.g., management of pain, or communicable or non-communicable diseases like hypertension and diabetes. Hence, depression had been a more under-recognized issue, particularly in rural India. As a result, mental illnesses, like depression, were often ignored while providing health care.<sup>[7,8]</sup>

Perhaps the most concerning was the association between depression and increased suicide risk among older adults. Due to factors such as chronic illness, loss of loved ones, social isolation, and the stigma surrounding mental health in this population, elderly individuals with depression are at a significantly higher risk of suicide compared to their younger counterparts. In many cases, care seeking for depression in elderly was lacking or delayed and showed iceberg's phenomenon. That is, it might go undiagnosed and untreated. This posed increased risk of suicide and might also increase risk of other diseases along with decreased adherence to treatment. Therefore, depression in the elderly was an urgent public health issue which warranted conducting a research for assessment of its true burden, hence the conception of the current study. Such study would go a long way in preventing both suicide and premature death.<sup>[9]</sup>

## MATERIALS AND METHODS

This observational, cross-sectional study was conducted among elderly individuals aged 60 years and above of both sexes residing in the rural field practice area of Rural Health Training Centre (RHTC) under the Department of Community Medicine, SHKM Government Medical College (GMC), Nalhar, Nuh, Haryana. Duration of study was 12 months from the date of commencement. This study was initiated after obtaining ethical clearance from the institutional ethics committee of SHKM Government Medical College, Nuh. (vide SHKM/IEC/2023/57 Dated 02/08/2023).

### Inclusion Criteria

1. Elderly individuals aged 60 years and above who had been residing in the study area for the past six months.

### Exclusion Criteria

1. Elderly individuals with gross communication difficulties, such as speech problems.
2. Elderly individuals with hearing abnormalities.
3. Individuals who were not willing to participate in the study.

**Sample Size Calculation:** The sample size was calculated by using the formula for cross-sectional studies  $3.84 \cdot Pq / L^2$ . The 'P' was prevalence (22.7%),<sup>[13]</sup> and 'L' was taken as absolute error (6%). After calculation and adding 10% non-response rate, the final sample size was calculated to be 210 study subjects.<sup>[8]</sup>

### Sampling Design

A house-wise list of elderly individuals residing in the study area was created from these family folders, which served as the sampling frame. From this sampling frame, a calculated sample size of 210 elderly individuals was selected using a simple random sampling technique by a draw of lots. The researcher himself contacted elderly persons through house to house visits till the desired sample was reached.

### Data Collection

House-to-house visits and interviews were conducted by the investigator to collect data from the study participants. Socio-demographic details and information on potential risk factors, such as type of family, physical activity, participation in social gatherings, socioeconomic status, physical illnesses, substance abuse, history of COVID-19 infection, major traumatic milestones in the family, and financial independence, were gathered. A semi-structured interview schedule, partly self-designed and partly comprising the Geriatric Depression Scale (GDS-30), was used for data collection.

The GDS-30 scale, a pre-validated tool, was utilized to identify cases of depression among the participants. The interview schedule was translated into Hindi/local language, pretested before use, and modified as necessary. On the GDS-30 scale, each response was assigned one point, with a maximum score of 30 and a minimum score of

0. The cut-off scores were as follows:

- Normal: 0–9
- Mild Depression: 10–19
- Severe Depression: 20–30

Socioeconomic status was assessed using the modified BG Prasad scale of Socioeconomic Status Classification (January 2022), which was commonly in use in India for the purpose.

**Statistical Analysis:** The collected data were entered into an MS Excel spreadsheet in a coded format, compiled, and collated. Statistical analysis was performed using statistical software. Data were analyzed in the form of proportions. Appropriate parametric or non- parametric tests, as applicable, were used to analyze the data at 5% level of significance ( $p = 0.05$ ).

## RESULTS

The current study was conceived and conducted to substantiate evidence on actual problem of

depression among elderly in this part of the State & Country after COVID-19 pandemic. The Observations made in the study are presented below: The majority of study subjects, i.e., out of 210 subjects, 101 (48.09%) plus 91 (43.33%), making it to 192 (i.e., 91.4%) fell in the age range of 60 to 70 years and 71 to 80 years respectively, which indicated that that was the most represented age group. The representation declined sharply in older age groups, with only 15 out of 210 study subjects (i.e., 7.14%) in the 81 to 90 years age range and a mere 1.44% (i.e., 3 out of 210 study subjects) aged over 90 years. In total, the dataset accounted for 210 study subjects, with each age group contributing to a clear trend of decreasing number of study subjects as the age increased beyond 70 years. This distribution highlighted the predominance of younger elderly individuals (i.e., 60-80 years) in the study subjects.

**Table 1: Age distribution of study participants (elderly)**

Age (in years)	No. of Study Subjects (N=210)	Percentage
60-70	101	48.09%
71-80	91	43.33%
81-90	15	7.14%
>90	03	1.44%
Total	210	100%

The majority i.e., 120 out of 210 (57.1%) elderly study participants comprised males whereas, the remaining 90 out of 210 (i.e., 42.9%) were females. This reflected a notable gender disparity, with males outnumbering the females in study population. While both the genders were represented, the data highlighted a predominance of males.

The overwhelming majority, i.e., 207 out of 210 study elderly persons (i.e., 98.56%), were married, indicating thereby that nearly all the recruited participants had a marital partner. A small minority, i.e., 3 out of 210 (i.e., 1.44%) were divorced, while there was no unmarried study participant. This was coherent with the socio-cultural background and the practice of universal marriages in orthodox Indian societies.

The majority of participants, i.e., 138 out of 210 study elderly (i.e., 65.71%) and 72 out 210 (i.e., 34.28%) belonged to Muslim and Hindu religious communities respectively. Hence, a significantly larger proportion of the population comprised Muslims compared to other religions. This finding was also coherent with the fact the predominant population of the area was Muslim.

In the study sample of elderly individuals, the majority of participants i.e., 164 out of 210 (78.10%) belonged to the Other Backward Classes (OBC), making it the most common category. General category subjects accounted for 29 out of 210 (i.e., 13.80%), while Scheduled Caste (SC) participants comprised 17 out of 210 (i.e., 8.10%). This

distribution reflected a higher proportion of OBC participants in the group, with relatively lower representation from the General and SC categories. A large majority, i.e., 143 elderly persons out of 210 (i.e., 68.09%) were illiterate, indicating that most of the individuals lacked formal education. In contrast, 67 out of 210 (i.e., 31.91%) study participants were literate, suggesting a smaller portion of the population had received some level of education. This distribution highlighted a significant gap in literacy rates within the participant / sample group, with illiteracy being much more prevalent. This finding is coherent with the fact the Nuh district was one of the aspirational districts of India.

A small proportion, i.e., 32 out of 210 (i.e., 15.23%) study participants, were working class, while the vast majority, i.e., 178 out 210 (i.e., 84.76%) belonged to non-working category. This distribution highlighted a significant disproportion, with most participants not currently engaged in work. As the data suggested that the study subjects were predominantly composed of individuals who were not working, it was coherent with the reality that older age group individuals themselves belonged to the group of dependent population. It might be due to the contributing factors like health conditions, or other social circumstances at this late age.

Out of 210, 159 (i.e., 75.72%) and 51 (i.e., 24.28%) study elderly individuals were non-vegetarian and vegetarian respectively. This finding reflected a larger proportion of the subjects consumed meat diet, whereas smaller portion of the study subjects followed a plant-based diet. This distribution

revealed a significant preference for non-vegetarian food among the participants, with vegetarians making up a minority.

The majority, i.e., 167 out of 210 (i.e., 79.52%) belonged to joint families, indicating that most recruited participants lived in large family households. In contrast, 43 out of 210 (i.e., 20.48%) were part of nuclear families, suggesting a smaller proportion of study elderly lived in households consisting of parents and their unmarried children. This distribution showed a clear dominance of joint families and nuclear families being significantly less common.

The largest group, i.e., 103 out of 210, (i.e., 49.04%), fell within the middle class, making it the most represented category among study participants. Following this, 76 out of 210 (i.e., 36.20%) were classified as lower middle class. A smaller portion, i.e., 26 out of 210 (i.e., 12.38%), belonged to the upper middle class, and only 5 out of 210 (i.e., 2.38%) were in the upper class. This distribution highlighted that the majority of study participants came from middle and lower-middle-class backgrounds, with very few from higher socioeconomic classes.

**Table 2: Distribution of socio-economic status among study elderly**

Category*	No. of participants (N=210)	Percentage
Upper class	5	02.38%
Upper middle class	26	12.38%
Middle Class	103	49.04%
Lower middle class	76	36.20%
Lower class	0	0%
Total	210	100%

**Table 3: Distribution of item wise scores on Geriatric Depression Scale – 30 among study participants (elderly individuals)**

SN	Question	Responses (N = 210)			
		No		Yes	
		n	%	n	%
1	Are you basically satisfied with your life?	37	17.6	173	82.4
2	Have you dropped many of your activities and interests?	114	54.3	96	45.7
3	Do you feel that your life is empty?	141	67.1	69	32.9
4	Do you often get bored?	169	80.5	41	19.5
5	Are you hopeful about the future?	120	57.1	90	42.9
6	Are you bothered by thoughts you can't get out of your head?	168	80	42	20
7	Are you in good spirits most of the time?	60	28.6	150	71.4
8	Are you afraid that something bad is going to happen to you?	203	96.7	7	3.3
9	Do you feel happy most of the time?	63	30	147	70
10	Do you often feel helpless?	188	89.5	22	10.5
11	Do you often get restless and fidgety?	175	83.3	35	16.7
12	Do you prefer to stay at home, rather than going out and doing new things?	127	60.5	83	39.5
13	Do you frequently worry about the future?	170	81.0	40	19.0
14	Do you feel you have more problems with memory than most?	187	89.0	23	11.0
15	Do you think it is wonderful to be alive now?	125	59.5	85	40.5
16	Do you often feel downhearted and blue?	185	88.1	25	11.9
17	Do you feel pretty worthless the way you are now?	181	86.2	29	13.8
18	Do you worry a lot about the past?	155	73.8	55	26.2
19	Do you find life very exciting?	127	60.5	83	39.5
20	Is it hard for you to get started on new projects?	99	47.1	111	52.9
21	Do you feel full of energy?	105	50	105	50
22	Do you feel that your situation is hopeless?	177	84.3	33	15.7
23	Do you think that most people are better off than you are?	162	77.1	48	22.9
24	Do you frequently get upset over little things?	189	90	21	10
25	Do you frequently feel like crying?	191	91.0	19	9.0
26	Do you have trouble concentrating?	124	59.0	86	41.0
27	Do you enjoy getting up in the morning?	30	14.3	180	85.7
28	Do you prefer to avoid social gatherings?	146	69.5	64	30.5
29	Is it easy for you to make decisions?	44	21.0	166	79.0
30	Is your mind as clear as it used to be?	61	29.0	149	70.95

As the name of the scale suggests, there were a total of 30 items in the scale which were scored. Each item was scored either 1 or 0. As per the original scoring for the scale, one point each for the item was scored if the answer to items 1, 5, 7, 9, 15, 19, 21, 27, 29, 30 was "No" or to the items 2, 3, 4, 6, 8, 10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26, 28 was "Yes." Hence, theoretically, the minimum and

maximum scores on GDS-30 could be 0 and 30 respectively. A total score of 0-9 was taken as normal, and a score of 10 or above was diagnosed as suffering from depression, with scores 10-19 as mild depression and 20-30 as severe depression.

Though the main utility of the Long Form Geriatric Depression Scale (GDS-30) shown in the table 31 above was to identify cases of elderly depression in



the form of total scores on the scale, some of the data are analysed and interpreted here as percentages or proportions of item wise responses. A significant majority, 173/210 (i.e., 82.4%) study individuals expressed satisfaction with life, while 37/210 (i.e., 17.6%) did not. While 114/210 (i.e., 54.3%) reported to have retained their activities and interests, 96/210 (i.e., 45.7%) had dropped many of

them. Most study participants, i.e., 141/210 (i.e., 67.1%), did not feel their life was empty, but 69/210 (i.e., 32.9%) individuals did. Similarly, boredom was found to be uncommon, with 169/210 (i.e., 80.5%) study individuals rarely experiencing it, though 41/210 (i.e., 19.52%) participants often did. The detailed findings are presented in the table 31 above.

**Table 4: Prevalence of depression among elderly population**

Status of depression		No. of participants (N=210)	Percentage	95% CI*
No depression		158	75.2%	68.8% – 80.9%
Depression	Mild depression	36	17.1%	12.3% - 22.9%
	Severe depression	16	7.6%	4.4% - 12.1%
	Total depression	52 (i.e., 36+16)	24.8%	19.1% - 31.2%
Total		210	100%	-

\*95% CI = 95% Confidence Interval

Out of the study sample of 210 elderly individuals, 52 (i.e., 24.8%) (95% CI 19.1% - 31.2%) were found to be suffering from depression (i.e., score of

10 or above on GDS-30), whereas, no depression was seen among the remaining 158 (75.2% (95% CI 78.8 – 80.9%).

**Table 5: Gender wise distribution and comparison of severity depression among study participants (elderly individuals)**

		Status of depression (N=210)				$\chi^2$ statistic	p value
		No depression	Mild	Severe	Total		
Gender	Female	66	17	7	90	.361 (df=2)	.835
	Male	92	19	9	120		
	Total	158	36	16	210		

Depression was not found to be statistically associated with gender among elderly participants. ( $\chi^2$  statistic .361; df=2; p value = .835)

## DISCUSSION

Our study revealed that the majority of patients fell within the 60–70 age range (48.09%), with a sharp decline beyond 80 years. This finding aligns with the results of Keshari P, et al. (2021),<sup>[10]</sup> who reported a similar age distribution with 65% of patients in their study population aged 60–80 years. Sanjay TV, et al. (2014),<sup>[11]</sup> observed a slightly younger age group, with 50–70 years being the most affected (52.40%), which may reflect regional or cultural variations in health outcomes.

In our study, a predominance of male patients (57.14%) was observed, which mirrors findings by Kumar BM, et al. (2021),<sup>[12]</sup> where males constituted 58% of the patient population. This gender disparity may result from sociocultural factors and healthcare access inequalities.

In the current study 98.56% of the participants were found to be married, underscoring the role of spousal support in health management. But as per the findings of study by Öztörün et al. (2022),<sup>[13]</sup> 75% of the patients were married.

The majority of our patients identified as Muslim (65.71%). This is in agreement with Gopal S, et al. (2018),<sup>[14]</sup> who reported a predominance of Muslim participants (67%) in a similar demographic setting.

Our study found that a significant portion of patients belonged to the Other Backward Classes (OBC) category (78.10%). This is consistent with findings by Chawla S, et al. (2018),<sup>[15]</sup> where OBC representation was 58%, highlighting the intersection of social stratification and health outcomes.

Our study found that the majority of patients belonged to joint families (79.52%), a trend also observed by Gopal S, et al. (2018),<sup>[14]</sup> where joint families constituted 62% of the population.

A significant proportion of patients in our study came from middle and lower-middle-class backgrounds (85.23%), similar to findings by Mulat N, et al. (2021),<sup>[16]</sup> where 68% of patients belonged to lower socioeconomic classes. This socioeconomic profile underscores the need for affordable and accessible healthcare services. Our study noted that 85.23% of participants belonged to middle and lower-middle-class backgrounds. Pilania M, et al. (2017),<sup>[17]</sup> reported a socioeconomic distribution, with 58% from lower socioeconomic classes.

Mental health issues were reported by 9.52% of participants in our study, a lower prevalence than that reported by Basta M, et al. (2021),<sup>[18]</sup> where 14% of patients experienced significant psychological distress. This discrepancy could be due to differences in screening tools or population

characteristics. Keshari P, et al. (2021),<sup>[10]</sup> reported a slightly higher prevalence of mental well-being concerns (12%), underscoring the importance of addressing mental health as part of holistic care. Additionally, Pilania M et al. (2017),<sup>[17]</sup> observed a 10% prevalence of depression or anxiety, indicating a similar trend of mental health issues across different populations. In contrast, Goyal A, et al. (2014),<sup>[19]</sup> reported a higher prevalence of 15.30%, suggesting regional or demographic differences in mental health awareness and reporting.

Our study aimed to explore the prevalence of depression among the elderly, with a particular focus on gender differences. The findings indicated no statistically significant association between gender and depression prevalence or severity.

## CONCLUSION

Depression was common in older adults, but it was not a normal development of ageing. Prevalence of depression among the elderly population in rural area of district Nuh is 24.8% (95% CI 19.1% - 31.2%), with mild depression at 17.1% (95% CI 12.3% - 22.9%) and severe depression at 7.6% (95% CI 4.4% - 12.1%). The prevalence of depression among elderly in the area is very high. The target population (elderly as well as other adults) may be sensitized about the magnitude of the problem of elderly depression. Elderly and other adults may be sensitized about the mental healthcare needs of elderly population for depression.

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