

# Prevalence of Geriatric Depression and Associated Factors in Kalika Rural Municipality of Rasuwa District, Nepal

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## ABSTRACT

**Background:** Geriatric depression, which has primarily been studied in high-income nations, is anticipated to become more prevalent as the world's old population grows. In low- and middle-income nations like Nepal, similar studies are rare.

**Objectives:** This aimed to determine the prevalence of geriatric depression and its associated factors in 60 years and above age group of both sexes.

**Setting and Design:** A community based cross-sectional study was conducted in the Kalika rural municipality of Rasuwa district, Nepal.

**Methods and materials:** Face to face interview technique and Geriatric Depression Scale (GDS-15) was used to collect information from 305 respondents aged above 60 years which was the required sample size of the study. Simple random technique was used for the selection of respondents.

Statistical analysis used: Chi-square test at 5% level of significance was used to identify association between socio-demographic, individual, contextual factors with geriatric depression.

**Results:** A total of 305 elderly people were participated in this study. The mean age was 70.91(±9.165) years. Overall prevalence of depression was 31.1%. Study also found that geriatric depression was significantly associated with living with children, family type, working status, family income, chronic illness, physical capabilities, involving in social activities, worried of being elderly, feeling of stress about life, family support, communication with family member and vital role in decision making (p<0.05).

**Conclusion:** Geriatric depression was prevalent in Kalika rural municipality. Based on these identified variables, current health programs should focus on addressing these challenges.

**Keywords:** Geriatric depression, community based cross-sectional study, Geriatric Depression Scale, prevalence

## INTRODUCTION

The senior population is steadily increasing over the world. By 2050, the number of old people aged 60 and more is expected to double, with the greatest increases occurring in low- and middle-income (LAMI) nations and similarly, depression's prevalence is also projected to increase in alarming rate. These demographic shifts are likely to provide

significant challenges for social and health care services.<sup>[1, 2]</sup> In the elderly, depression is a common cause of impairment. Reduced life satisfaction and quality, social deprivation, loneliness, greater use of health and home care services, cognitive decline, impairments in everyday tasks, suicide, and higher non-suicide mortality are some of the effects.<sup>[3]</sup> The older population is growing, and geriatric depression is becoming more

widespread.[4] Today, over 322 million individuals worldwide suffer from depression, with nearly half of these coming from the Southeast Asian and Western Pacific regions. Depression is projected to affect 4.4 % of the world's population..[5] In Nepal, depression affects 17.3 to 89.1% of elderly in nursing homes, 25.5 to 60.6 percent of elders living in the community, and 53.2 to 57.1 percent of elders in hospitals.[6] Geriatric depression is a serious public health concern that reduces quality of life and costs the family and society money.[1] Although the number of elderly people in Nepal is continually increasing, the government has given little importance to identifying their problems through research or even implementing the existing senior citizen act.[7]

### Objectives

The aim of this study is to determine the prevalence of depression and its associated factors among community living elderly.

## MATERIALS AND METHODS

### Study area and design

The current study was conducted in Kalika rural municipality of Rasuwa district, Nepal. It was descriptive cross-sectional study design with a community-based approach.

### Sample size determination

Assuming a prevalence of geriatric depression (p) 56.0% which was taken from the study conducted in Kavre district of Nepal.[1] The sample size was calculated by using formula  $n = \frac{Z^2 pq}{d^2}$ . where  $Z = 1.96$  (95% confidence interval [CI]);  $P =$  Prevalence value (Reference);  $q = 1 - P$ ;  $d =$  Margin of error which was taken as 5%. The sample size came out to be 378. According to municipal data, there are a total of (N) 1066 persons in Kalika rural municipality who are 60 years old or older. Now, we estimated a sample size of 305 persons by using the formula  $n = \frac{n_0}{1 + n_0/N}$  [8], and adding a 10% non-response rate. Where  $n =$  sample

size for finite population,  $n_0 =$  sample size for infinite population, and  $N = 1066$  (total population of elderly population)

### Sampling technique and procedure

The voter list was collected from the Kalika Municipality office, which served as the study sampling frame. A list of people over the age of 60 was compiled. A total of 305 ( $n_0$ ) respondents were selected by simple random sampling i.e., Using random table.

### Data collection: Tools and techniques

Face-to-face interviews were conducted using a semi-structured questionnaire to collect data on socio-demographic characteristics, as well as individual and interpersonal factors.

The depression was assessed using the Geriatric Depression Scale (GDS-15).[9] Each question was graded on a scale of 1 to 0. Score 1 showed that the answer to the question awarded one point for depressed symptoms, while a score of 0 indicated that no point was awarded. Depression symptoms were classified as normal (0-4), mild (5-8), moderate (9-11) and severe (12-15).[2] This tool had already used in Nepal.[10] Before beginning data collection, the questionnaire was developed in English, translated into Nepali, and field tested.

### Data collection procedure

In order to assure the quality of research, the quality in each research process was planned. Before beginning the study, we visited the study location and obtained authorization from the concerned authorities. The Yeti Health Science Academy's Institutional Review Committee (YHSA IRC) and the Research Committee both gave their approval. Before data was collected, the purpose of the study was explained to the respondents, and written consent was acquired. Every day, the questionnaire was double-checked for accuracy and completeness.

## Data analysis

The data were entered using EpiData (version 3.1) software package, and SPSS statistical software, version 20, was used to execute all of the analyses. Data on socio-demographic characteristics, individual and contextual factors were analyzed using descriptive statistics. Chi-square test was applied for the association between geriatric depression and risk factors.

## RESULTS

### Socio-demographic variables

**Table 1: Socio-demographic characteristics of the respondents**

Variables	Frequency (N)	Percentage (%)
Age		
60-69	156	51.1
70-79	106	34.8
80-89	31	10.2
90-99	8	2.6
100 & above	4	1.3
Sex		
Male	169	55.4
Female	136	44.6
Educational status		
Illiterate	205	67.2
Literate	87	28.5
Basic level	8	2.6
Secondary level	3	1.0
Bachelor Level and Above	2	0.7
Marital status		
Unmarried	9	3.0
Married	219	71.8
Divorced	3	1.0
Widow	74	24.3
Living with children		
Yes	256	83.9
No	49	16.1
Ethnicity		
Brahmin	163	53.4
Chhetri	16	5.2
Janajati	113	37.0
Dalit	13	4.3
Religion		
Hindu	192	63.0
Buddhism	105	34.4
Christian	8	2.6
Family type		
Nuclear	68	22.3
Joint	237	77.7
Working status		
Working	179	58.7
Not working	126	41.3
If working (which work)		
Agriculture	167	54.8
Business	12	3.9
Family income		
For six months, meet the most basic needs	171	56.1
For six months, do not meet the basic requirement	134	43.9

A total of 305 elderly people were included in this study with the mean age 70.91(±9.165) years. Table 1 shows the socio-demographic characteristics of the respondents who took part in the study. Half of the responses, 176 (51 percent), were between the ages of 60-69, with 4 (1.13 %) being between the ages of 100 and above. The majority of the responders, 169 (55.4%), were men, while the remainder 136 (44.6%) were women. Considering educational level most of the respondents 205 (67.2%) were illiterate, while the 100 (32.8%), were literate. The majority of the respondents, 219 (71.8%), were married, with only 3 (1.1%) being divorced. The majority of respondents 256 (83.9 %) lived with their children, while the remaining 49 (16.1 percent) lived alone. Half of the respondents, 163 (53.4%), were Brahman, with a minority of 13 (4.3%) being Dalit. In terms of religion, 192 (63%) of respondents were Hindu, while 8 (2.6%) were Christian. Considering the type of family, the majority of respondents 237 (77.7%) lived in a joint family. Asked about occupational status, half of the respondents 167(54.8 %) were involved in agriculture, which accounted for 179 (58.7%) of the total number of respondents. In terms of family income, 171 (56.1%) of respondents are able to meet their basic needs for six months, while the remainder 134 (43.9%) are unable to meet their basic needs for six months.

### Individual variables

Tobacco products, alcoholic products, chronic illness, functional capabilities, death of a family member, social activities, worries of being elderly, stress, and financial requirement management are some of the individual variables included in this study.

From the table 3, it can interpret that out of 305 respondents, 166 (54.4%) consumed tobacco products, while the remaining 139 (45.6%) did not. Only 69 (22.6 %) of respondents consumed alcohol, while the majority of 236 (77.4%) did not. When it comes to physical chronic illness,

over half of the respondents 132 (43.3%) have it, with the majority of them suffering from COPD and High Blood Pressure 56 (42.4%) and 38(28.8%) respectively. In terms of physical abilities, the majority of the respondents 235, (77 %) were capable of carrying out their everyday duties, while the remainder 70 (23%) were not.

**Table 2: Individual's characteristics of the respondents**

Variables	Frequency (N)	Percentage (%)
Consumption of tobacco		
Yes	166	54.4
No	139	45.6
Consumption of alcohol		
Yes	69	22.6
No	236	77.4
Presence of physical chronic illness		
Yes	132	43.3
No	173	56.7
If yes, which illness(n=132)		
High Blood Pressure	38	28.8
Diabetes Mellitus	13	9.8
Cancer	1	.8
COPD	56	42.4
Heart Disease	9	6.8
Others	15	11.4
Physical abilities to carry out daily tasks		
Yes	235	77.0
No	70	23.0
Involvement in social activities		
Yes	220	72.1
No	85	27.9
Worries of being elderly		
Yes	101	33.1
No	204	66.9
If Yes, Types of worriedness(n=101)		
Financial Insecurity	67	63.2
Dissatisfaction with old age	27	25.5
Reduced interest in different ac	4	3.8
Fear of future about exclusion f	8	7.5
Death of family members within 12 months		
Yes	30	9.8
No	275	90.2
Feeling of stress about Life		
Yes	82	26.9
No	223	73.1
Management of financial requirements		
Self-Working	120	39.3
Depends upon family	176	57.7
Social Security Allowance	9	3.0

In terms of social activities, the majority of respondents 220 (72.1%) were involved in them, while only 85 (27.9%), were not. When asked why they were worried, just 101 (33.1 %) said they were worried about becoming old, while financial instability was the leading reason of worriedness i.e., 67 (63.2 %). Similarly, the majority of 223 (73.1%) people do not experience any stress in their lives, more

than half of 176 (57.7%) people rely on family members for financial support, and only 30 (9.8%) people have experienced the death of a family member in the last 12 months.

### Contextual variables

Contextual variables include family support, adequate communication with family members, and a critical role in family decision-making.

Table 3, shows information on the respondents' contextual characteristics. In terms of family support, the majority of respondents 256 (86.9%) had family support, whereas the 40(13.1%) did not. The majority of respondents, 245 (80.3%), had adequate communication with their family, while the remainder 60 (19.7%) did not have adequate communication with their family member. In terms of vital involvement in family decision-making, the majority of respondents, 204 (66.9%), said they played a critical part in family decision-making.

**Table 3: Contextual characteristics of the respondents**

Variables	Frequency	Percentage (%)
Family support		
Yes	265	86.9
No	40	13.1
Adequate communication with family members		
Yes	245	80.3
No	60	19.7
Vital role in decision making in family		
Yes	204	66.9
No	101	33.1

### Prevalence of Geriatric depression

**Table 4: Distribution of respondents according to depression**

Variables	Frequency(N)	Percentage (%)
Depression		
Yes	95	31.1
No	210	68.9
Level of Depression(n=210)		
No Depression	210	68.9
Mild Depression	73	23.9
Moderate Depression	20	6.6
Severe Depression	2	0.7

The total prevalence of depression in the study population was 95 (31.1%), with 210 (68.9%) participants having no depression, according to the Geriatric Depression Scale (GDS-15). There are 73

(23.9%) people who have moderate depression, 20 (6.6%) who have moderate depression, and only 2 (0.7%) who have no depression (Table 4).

### Associations of geriatric depression

The data presented in table 5 shows statistical association of depression with living with children (p=0.002), family type (p=0.002), working status (p= 0.000) and family income (p= 0.000), but sex was not associated with depression (p=0.386).

**Table 5: Association between geriatric depression and selected demographic variables**

Socio-demographic characteristics	Depression		p-value
	Present	Absent	
	N (%)	N (%)	
Sex			
Male	49(29%)	120(71%)	0.386
Female	46(34%)	90(66%)	
Living with children			
Yes	70(27%)	186(73%)	0.002
No	25(51%)	24(49%)	
Family type			
Nuclear	32(47%)	36(53%)	0.002
Joint	63(27%)	174(73%)	
Working status			
Working	35(20%)	144(80%)	0.000
Not Working	60(48%)	66(52%)	
Family income			
For six months, meet the most basic needs	34(20%)	137(80%)	0.000
For six months, do not meet the basic requirement	61(46%)	73(54%)	

**Table 6: Association between geriatric depression and selected individual variables**

Variables	Depression		p-value
	Present	Absent	
	N (%)	N (%)	
Consumption of tobacco			
Yes	51 (31%)	115 (69%)	0.901
No	44 (32%)	95 (68%)	
Consumption of alcohol			
Yes	28(40%)	41(60%)	0.054
No	67(28%)	169(72%)	
Presence of chronic illness			
Yes	52(39%)	80(61%)	0.007
No	43(25%)	130(75%)	
Physical abilities to carry out daily tasks			
Yes	47(20%)	188(80%)	0.000
No	48(69%)	22(31%)	
Involvement in social activities			
Yes	42(19%)	178(81%)	0.000
No	53(62%)	32(38%)	
Worries of being elderly			
Yes	60(59%)	41(41%)	0.000
No	35(17%)	169(83%)	
Death of family member within 1 year			
Yes	12(40%)	18(60%)	0.270
No	83(30%)	192(70%)	
Feeling of stress about life			
Yes	54(66%)	28(34%)	0.000
No	41(18%)	182(82%)	

Table 6 demonstrates statistical association of geriatric depression with presence of chronic illness (p=0.007), physical capabilities for doing daily living activities (p=0.000), involvement in social activities (p=0.000), worriedness of being elderly (p=0.000) and feeling of stressful life (p=0.000) but consumption of tobacco (p=0.901), consumption of alcohol (p=0.054) and death of family member within 12 months (p=0.270) were not associated with depression.

Table 7 shows statistical association of depression with family support (p=0.000), adequate communication with family member (p=0.000) and role of decision making in family (p=0.000).

**Table 7: Association between geriatric depression and selected contextual variables**

Characteristics	Depression		p-value
	Present	Absent	
	N (%)	N (%)	
Family Support			
Yes	68(26%)	197(74%)	0.000
No	27(64%)	13(32%)	
Adequate Communication			
Yes	59(24%)	186(76%)	0.000
No	36(60%)	24(40%)	
Decision Making Vital Role			
Yes	43(21%)	161(79%)	0.000
No	52(51%)	49(49%)	

## DISCUSSION

According to the current study, 31.1 % of the older population suffers from depression, which is consistent with previous findings. Chalise and Rai [7] found that 29.7% Nepalese rai older adults in the Kathmandu valley were depressed. Jadav and Patel [11] found 34.1 % depression among senior population in rural area of Vadodara, Gujrat and Pilia, Yadav [12] found 34.4% depression among Indian elderly population. However, some studies contradict our findings: a study conducted among elderly people in a rural south Indian community found 12.7% [13], a study conducted in north India 9.5 % [14], a study conducted in Thailand 18.5% [15], and a study conducted in Nepal among older adults found 15.4% [16] which is lower than my study and some were higher than our study; a study conducted by

Shrestha, Shrestha [6] in the emergency department of teaching hospital in Nepal found 45.7 % prevalence of geriatric depression, Jemal, Hailu [17] found 54.5 percent, and a study conducted by Simkhada, Wasti [18] among older adults in Kathmandu Nepal found 60.6%. This variation may be due to different in study setting and tool used to assess depression.

The relationship between geriatric depression and socio-demographic, environmental, and individual characteristics was investigated in this study. And the findings suggest that socio-demographic characteristics such family type, living with children, elderly population working status, and family income are all associated to geriatric depression. Contextual characteristics such as family support, good communication among family members, and family decision-making roles were also associated to depression. However, sex and individual factors such as cigarette use, alcohol consumption, and the presence of chronic disease were not associated to geriatric depression, which is consistent with earlier findings; a study conducted by Shrestha, Shrestha [6] found an association between the presence of chronic disease and depression and no association between age and depression, John and Nath [19] found type of family associated with depression but age was not associated, Bineetha, Vijayakumar [20] found sex, alcohol and tobacco consumption were not associated with depression, but that being unemployed was, Manandhar, Risal [1] found sex, alcohol consumption were not associated with depression, but that having a chronic health problem and physical capability were. Similarly, other studies have found that family support, living with children, stress, a lack of decision-making, and family income are all strongly associate to depression [1, 2, 21].

## CONCLUSION

The findings of this study revealed that the majority of respondents (68.9%)

were normal, while the remaining 31.1 percent were depressed, implying that out of every ten respondents, three were suffering from a mental health disorder, namely depression, which is still considered a public health challenge. Factors linked to depression in the senior population should be investigated further, and relevant public health interventions should be implemented by local governments to address these issues.

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