# Prevalence And Associated Factor with Hypertension Among Elderly Population of Durgathali Rural Municipality of Bajhang District of Nepal

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**Abstract**

**Introduction:** Old age is not a disease in itself, but the elderly public are vulnerable to long term diseases of insidious onset like hypertension. Hypertension is a cardiovascular disorder rapidly emerging as a major public health problem in developing countries and is the most widely recognized modifiable risk factor. The main objectives of the study were to determine prevalence of hypertension among old age population and to study the factors affecting the hypertension.

**Methodology:** A quantitative cross-sectional descriptive study was conducted in the Bajhang district of Nepal. The study participants were old age group population with age more than or equal to 60 completed years. A sample size of 247 was obtained using simple random sampling and proportionate sampling method. There are seven wards in Durgathali rural municipality among them four wards (ward number 1,2,7,4) selected for study by using lottery method. From four selected ward 247 respondent will be selected proportionately.

**Findings:** Prevalence of hypertension was 36%, significantly higher in age group more than 80 years (50%) and males (48.6%) than female. Hypertension was significantly associated with smoking and insufficient fruit and vegetable consumption habit. Overweight and high waist and hip circumference ration were significantly affecting hypertension.

**Keywords:** Elderly health, Geriatrics, Bajhang, Far-west, Hypertension

**Introduction:**

The population aging and the growing number of elderly persons are most important demographic changes to emerge in the final decades of the twenty-first century. The united nations define "over 60 years of age people as aging people." (1) The senior citizen Act 2063 B.S, Nepal defines the senior citizens as " individuals who are above or equals to 60 years of age."(2) according to the census survey of 2011 about 2.1 million of the public were elderly, which accounts for 8.1% of whole population. The national

population growth rate is 1.35% and the elderly population growth rate is 3.8%. It is estimated that elderly population still more likely to increase rapidly in future.(3)

Hypertension is serious medical condition which significantly increases the risk of developing heart, brain, kidney and other disease. An individual is considered hypertensive if when blood pressure measured on two consecutive occasion, their systolic blood pressure is ≥140mm Hg or diastolic blood pressure is ≥90mm Hg on both occasion or those taking an antihypertensive drug.(4)

In Nepal, the prevalence rate of chronic disease is skyrocketing. Nearly 66% of all fatalities in Nepal were predicted to be caused by NCDs in 2022, with cardiovascular disease (CVD) accounting for 30% of these fatalities.(5)

In 2019, Shukuri Arif conducted a community-based cross-sectional study in the Chiro town of remote Ethiopia, which revealed a prevalence of hypertension was 41.9% (95% CI: 37.2–46.6). The prevalence of hypertension among older adults was high. (6)

The NCDs are prevented by modifying their modifiable risk factors, that is, tobacco use, high salt intake, low intake of fruits and vegetable, overweight/obese and harmful use of alcohol.(7) The study on prevalence of hypertension and its associated factors among elderly peoples at Durgathali Rural municipality of Bajhang district, Sudurpaschim Province has not done till now.

The aims of this study was to determine the prevalence of hypertension and its associated factors among elderly populations in Durgathali Rural Municipality of Bajhang Districts of Far-West Nepal. In this study blood pressure was taken as the dependent variable and sociodemographic characteristics, anthropometric variables as weight, height and waist circumference and behavioral variables were taken as independent variables for the conceptual framework.


**Methodology**

The study was quantitative study and study design was descriptive cross-sectional study as prevalence was to be find out and one-time data collection was cone without follow up. All the public of the Durgathali rural municipality were the study population the total number according to the municipality office was (N=925). Among the seven wards 1,2,7 and 4 wards were selected for the study population through lottery method. The sample size was taken from the formula $n=z^2pq/d^2$. The prevalence of hypertension in Nepal 27.3% was taken as p, 95% confidence lavel was used along with 5% error of margin. Due to which the samples become 305 and adjusting with the 10% of non responding error which becomes 336.

Therefore, required sample size = 336

Where, N= 925

Then desired adjusted sample size Sample size (n) = $n_0/1+n_0$ /N

$$n = \frac{336}{1+(\frac{336}{925})}$$

$n = 247$

The required sample size for my study was 247 elderly peoples.

For the collection of data fully structured questionnaire was used. Those questionnaires were translated in to Nepali language. Regarding the techniques for the data collection face to face interviews was done. While taking the anthropometric data shoes were taken out participants was advised to stand straight and while taking wait jacket, shoes and purse were asked to taken out. Thus collected data were entered in to epi info version 3.1 and analyzed with the SPSS version 26. Those respondents who were 60 or above age and had given the consents for data collection were in the inclusion criteria whereas respondents who

didn't provides us consents during the data collection were in the exclusion criteria. The ethical approval was taken from the respective municipality in the written forms and from the respective participants. Findings:
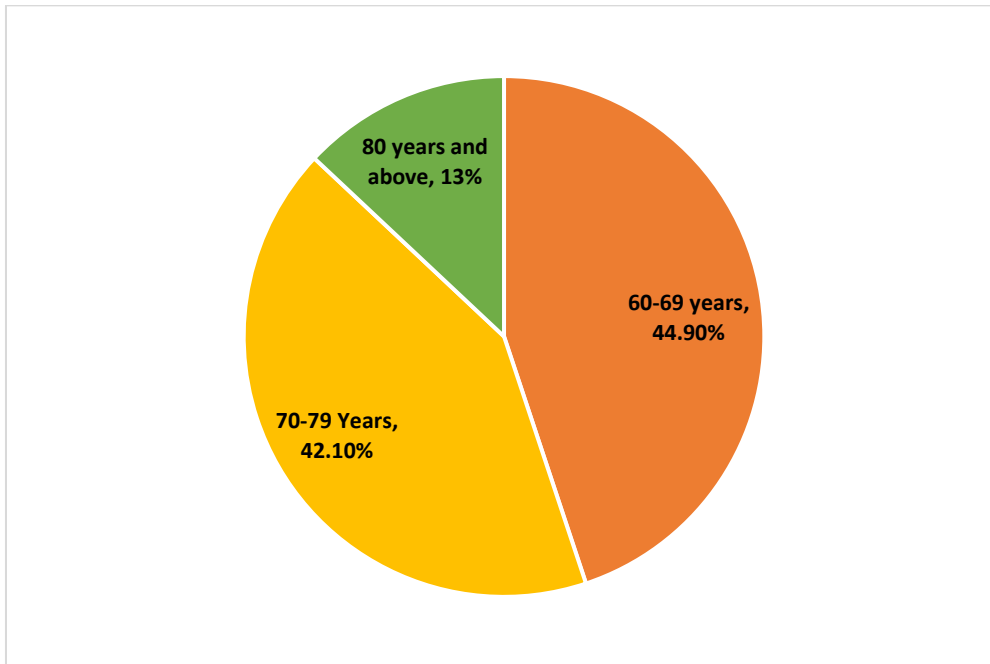


*Figure 1: Age distribution of the respondents*

Figure 1 demonstrates the age distribution of the respondents. The majority of the respondents seems to be of the age between 60-69 years which was 44.90%, followed by the 70-79 years 42.10% and above 80 years 13% respectively. We can conclude that average age of the respondents were 60-69 years.

| Variables | Indicators | Number % |
|---|---|---|
| **Marital status** | Married | 176 (71.3) |
| | Widowed | 71 (28.7) |
| **Educational status** | Illiterate | 200 (81) |
| | Literate | 34 (13.8) |
| | Basic level (1-8) | 8 (3.2) |
| | Higher level (9-12) | 4 (1.6) |
| | Collage/University | 1 (0.4) |
| **Religion** | Hindu | 247 (100) |

| | | |
|---|---|---|
| **Occupation** | Homemaker | 109 (44.1) |
| | Agriculture | 101 (10.9) |
| | Retired | 6 (2.4) |
| | Business | 2 (0.8) |
| | Other | 21 (8.5) |
| **Ward number** | 1 | 65 (26.3) |
| | 2 | 46 (18.6) |
| | 4 | 70 (28.3) |
| | 7 | 66 (26.7) |

*Table 1: Sociodemographic distribution of the respondents*

Table 1 demonstrates the socio demographic status of the respondents, to begin with the marital status 71.3% of the respondents were married and even both couples are alive and 28.7% were widow. Regarding the educational status, 81% of the respondents were illiterates, followed by literate 13.8% and 0.4% had got the education of university or college. As per the findings 44.1% were homemakers in the occupation and 0.8% of them were business personnel. Regarding the occupation Hindu was the significant religion. Among the four wards, ward number 4 were having maximum numbers of the respondents which was 28.3% followed by 7(26.7%), 1(26.3%) and 2(18.6%) respectively.
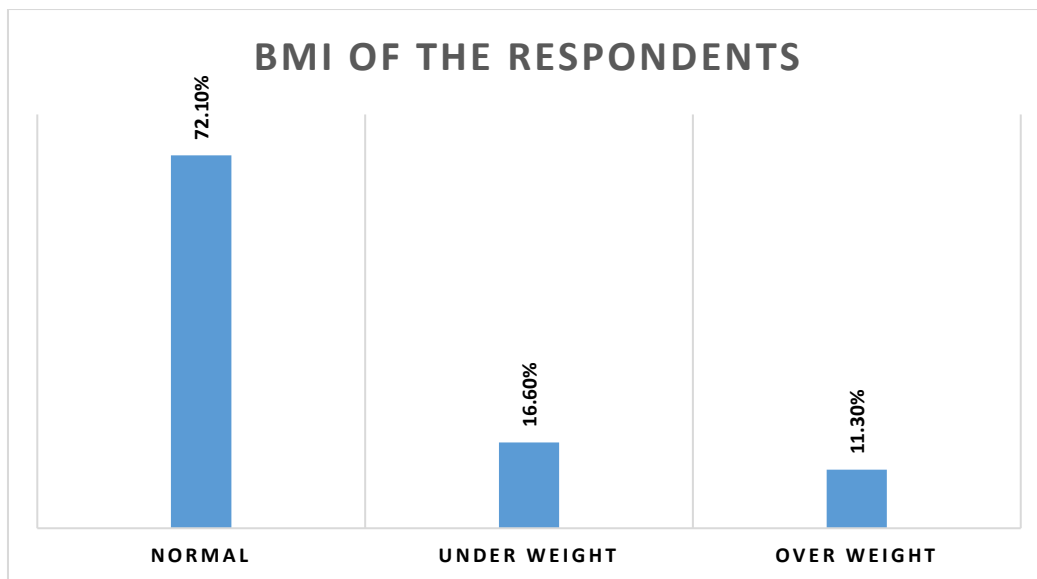


*Figure 2:BMI of the respondents*

Figure 2 shows the BMI Body Mass Index of the respondents. 72.10% of the respondents were normal followed by 16.60% underweight and 11.30% overweight. In a nut shell, majority of the respondents were normal, greater the respondents were underweight as compared to the overweight.

| Variables | Indicators | Hypertensive % | Non Hypertensive % | D.F | Chi-square Value | P value |
|---|---|---|---|---|---|---|
| Sex | Female | 55 (31.1) | 122 (68.9) | | 6.663 | 0.01 |
| | Male | 34 (48.6) | 36 (51.4) | 1 | | |
| Cast | Dalit | 24 (28.9) | 59 (71.1) | | | |
| | Chhetri | 51 (44) | 65 (56) | | | |
| | Brahmin | 14 (29.2) | 34 (70.8) | 2 | 5.973 | 0.05 |
| fruits and vegetables consumption patterns | Insufficient | 64 (36.4) | 112 (63.6) | | Fishers test | |
| | Sufficient | 25 (35.2) | 46 (64.8) | 1 | | 0.000* |
| BMI | Over weight | 25 (89.3) | 3 (10.7) | | | |
| | Normal weight | 51 (28.7) | 127 (71.3) | 1 | 38.99 | .000* |
| | Low weight | 13 (31.7) | 28 (68.3) | | | |

*Table 2: Association of the demographic variables with hypertension*

Regarding the associated factors table number 3 demonstrates statistical significant association between various factors and hypertension. According to the findings sex was highly significant with hypertension. Regarding the cast and hypertension in the D.F 2 the p value was 0.05 which means there is significant association. Fruit and vegetables consumption patterns shows the highly significant association with hypertension the p-value was 0, similarly BMI and hypertension were highly statistically significantly associated with the p-value of 0.00.

**Discussion:**

This study was carried out in Durgathali Rural Municipality, Bajhang district of Nepal. The objective of the study is to identify the prevalence of hypertension and association with the different socio-demographic, behavioural and biological characteristics among the elderly peoples. The sample size was 247, among them 177 were female participants and 70 were male participants. The study provides the prevalence of hypertension and its associated factors that exist among elderly peoples. The sex, insufficient fruit and vegetable intake, smoking habit, alcohol consumption, over weight and high waist and hip circumference ratio were highly prevalent among study participants.

Hypertension is an important cause of morbidity and mortality in the elderly population and is a risk factor for many other diseases. Study revealed the prevalence of hypertension is 36% among study participants, it is more prevalent in male (48.6%). The prevalence of hypertension in elderly people is consistent with cross sectional study conducted in Rural Ethiopia in 2019, which revealed that the prevalence of hypertension was 41.9%.(6) It is also consistent with previous study conducted in Banepa district of Nepal (44.9%)(8) and India 42.7%.(9) The prevalence of hypertension in this study area was much lower than previous study conducted in Dhapasi VDC of Kathmandu district and Kathmandu valley among elderly people which showed that prevalence of hypertension in elderly population was 56.9% and 54.9% respectively. (10)(11)

In the study the prevalence of hypertension is increases with increasing age, the prevalence of hypertension in age group 60-69, 70-78 and ≥80 years is 32.4%, 35.6% and 50% respectively. Age of 80 and above have all most double prevalence of hypertension as compared age group 60-69years but it was not significant statistically. As many study agreed, study conducted in Kathmandu valley,(11) Dhapasi VDC of Kathmandu district,(10) Banepa municipality of Banepa district,(8) Rural Ethiopia,(6) rural area of Vadodara district, Gujarat, India,(9) Hohoe Municipality of Ghana,(12) urban slum in Nairobi, Kenya,(13) and Southern Ethiopia,(14) showed that the prevalence of hypertension was higher in older ages. This might be due to fact that biological effect of increased atrial resistance due to atrial thinking as one gets older.(15)

In this study the statistically significant association was observed between hypertension and insufficient fruit and vegetable intake with P-value 0.000. Similarly strong association seen in the study conducted in rural Ethiopia.(6) Another study conducted in Durame Town, southwestern Ethiopia also showed that the insufficient fruit and vegetable was strongly associated with hypertension.(14)

In my study the smoking habit is significantly associated with hypertension with P-value 0.015. Other similar types of study also showed the smoking is strongly associated with hypertension.(9)(8)(10)

In this study there were 89.3% obese respondent suffered from hypertension at P-value 0.000, so conclude that the overweight was statistically significant with hypertension. The similar study conducted in rural Ethiopia also showed significant association between hypertension and overweight (Being overweight/obese were four times (AOR: 4.29; 95% CI: 2.48–7.42) more likely to be hypertensive compared to normal).(6) Another similar study conducted in Banepa municipality of Banepa showed that >25 BMI statistically associated with hypertension with P-value 0.002 .

All most half (40.9%) of the respondents have high waist and hip circumference ratio and 57.4% of them were hypertensive with P-value 0.000, which means waist and hip circumference was statistically significant with hypertension.

**Conclusion:**

This study was conducted to identify the prevalence of hypertension with its associated factors among elderly peoples of rural area of Sudurpaschim province, Durgathali Rural Municipality of Bajhang district. The prevalence of hypertension among older people was found to be high (36%). Factors including being of older age, being male sex, insufficient fruit and vegetable intake, smoking habit, being overweight/obese and having high waist and hip circumference ratio were found to be significantly associated with hypertension.

**Acknowledgement:**

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