

Research article

# Hypertension and Associated Demographic Factors among Chepang Adults in Nepal

Kshitiz Upadhyay Dhungel, Agya K.C.

Santwona Research Centre, Santwona College  
Kathmandu, Nepal

<sup>1</sup>Professor, and Chairman, Santwona Research centre, Kathmandu, Nepal

<sup>2</sup>MSc. Student, Department of Nutrition and Dietetics CAFODAT, Kathmandu Nepal

## ABSTRACT

**Background and Objectives:** Hypertension is one of the leading health problems globally. In developing countries like Nepal, the prevalence of hypertension is increasing yearly. This study aims to find the prevalence of hypertension and associated demographic factors among Chepang people, an indigenous ethnic group also known as one of the isolated tribal groups of Nepal.

**Material and Methods:** It is a descriptive cross-sectional study performed in total of 324 respondent living in chepang community of Majbang-09 of Kalika Municipality. Semi structured questionnaire including socio-demographic, anthropometric measurement, 24 hour diet recall, and food frequency to explore dietary diversity information. Data entry and analysis was done using SPSS 20. Chi-Square test was used to measure the association between variables and was considered significant at  $p < 0.05$ .

**Results:** According to the study the 35.5% of the respondent were hypertensive and 50.3% of were pre-hypertensive. More than half of the respondent (58.3%) had normal BMI followed by (26.9%) of the respondent were overweight, (9.0%) of the respondent were under nutrition and (5.9%) of the respondent were obese. Among the respondent who had hypertension (60.7%) were above 60 years and the lowest (21.3%) were below 40 years.

**Conclusion:** The socio demographic variables like age, sex, educational status, annual income and marital status were found to be significantly associated with hypertension.

**Key words:** Hypertension (HTN), Cardiovascular disease, Non-Communicable disease (NCD), Indigenous populations, Chepang

## INTRODUCTION

Hypertension is one of the leading health problems globally. In developing countries like Nepal, the prevalence of hypertension is increasing yearly. If hypertension is untreated and uncontrolled it leads to structural and functional abnormalities of cardiovascular system, which ultimately harm heart, kidney, brain and other vitals

organ of body [1]. Hypertension can occur in any age; however it is more common in adult. Labeled as silent killer, person may be unknown about sign and symptoms until there is complication [2]. Hypertension is a major public health problem of 21<sup>st</sup> century.

Hypertension (HTN) has become very common worldwide and can lead to major health outcomes, such as myocardial

infarction, stroke, renal failure, and ultimately death. The prevalence of HTN is increasing in developing countries and is one of the leading causes of death and disability [3]. Prevalence of hypertension is climbing worldwide, especially in developing countries. This is ascribed to a combination of poor health systems and increasingly unhealthy lifestyles [4]. Although disease caused by raised hypertension is more prevalent in urban areas, it is also seen in people of rural areas with low socioeconomic condition unfortunately the prevalence of hypertension is increasing worldwide but awareness, treatment and control rates are very low [5].

Non-Communicable Diseases are increasing in Nepal. In 2008, it is estimated that nearly 50% of total deaths were caused due to NCDs in which CVD considered for 25% of these deaths. Hypertension is one of the major risk factors for CVD, which was estimated to present in 27.8% of Nepalese adults aged 25 years and above [6].

Nepal is one of the lowest income countries where nationally representative sample revealed that 25.7% of Nepalese's population aged 15±69 years suffered from hypertension in 2013. Despite the high prevalence, control of hypertension was low in Nepal and ranged from 11.7% to 24% [7]. In the developing countries like Nepal the burden of disease has shifted from communicable to non-communicable diseases and hypertension is one of the emerging problem, according to the survey report done by The STEPs a prevalence of hypertension in Nepal is 23.4% and the same study revealed that about 43% population never had their blood pressure measured and they remain unscreened [8]. Worldwide indigenous populations reveal a lower age expectancy and low standard health status in comparison to non-

indigenous population. The prevalence of hypertension is high among indigenous peoples in North America and Australia [9]. Chepang are indigenous population of Nepal living in the rugged ridges of the Mahabharata mountain range of central Nepal. They have been characterized as the poorest of Nepal's poor. Since very sparse literature was found about the prevalence of hypertension and its associated factors among Chepang people. This study was carried out to assess the prevalence of hypertension and associated demographic factors among adults of chepang.

## **MATERIAL AND METHODS**

Descriptive cross sectional study was adopted to study the prevalence of hypertension and its associated factors among Chepang people. All the Chepang tribes of age 30 years and above residing in Majbang-09 of Kalika Municipality who gave consent were participants of the study. People who were suffering from any diseases and who were pregnant were excluded from the study.

Data were collected by using semi structured questionnaire. Height was measured using stadiometer, weight was measured using standard weighing machine and then BMI was calculated. Blood pressure measurement, Waist and Hip was measured by standard procedure and Waist Hip ratio calculated as used by Dhungel (2008) and Upadhyay-Dhungel K et al. (2019) [10-11]. Data processing was done by creating variables, entering, coding and tabulation of the data and analysis was done by using SPSS version 20 software and MS Excel. Percentage, proportions and contingency tables was used as appropriate for descriptive of the data. Descriptive and inferential statistics (mean, mode, standard deviation etc.) was preferred

for data entry and analysis. Chi -square test was used to analyze the association between dependent variable and independent variables of the study. All probability values less than 0.05 ( $p < 0.05$ ) was considered statistically significant.

To ensure the validity and reliability of the result, the measurer and instruments was standardized prior to actual field work. The questionnaire was pre-tested to staff in CAFODAT and Santwona College and correction was made based on the feedback/ input received in the questionnaire. While entering the data in the SPSS dataset, the data was re-checked twice for its accuracy so that any discrepancies that can occur while entering the data in dataset was corrected. The ethical approval was taken from institutional review board of Santwona Research Centre, Santwona College, Baneshwor and CAFODAT Review board.

## RESULTS

Socio-demographic details of the respondents are shown in Table 1. The mean age of the respondents was  $45.41 \pm 13.52$  years. Minimum and maximum age of the respondent was 30 years and 76 years respectively.

Similarly, more than half or the respondent (54.3%) were male and less than half (45.7%) were female. It shows that the majority of respondent (46.3%) were under 40 years followed by (34.9%) in 40-60 years and (18.8%) were in above 60 years.

<u>Variable</u>	<u>Number</u>	<u>Percentage</u>
<b>Age category of Respondent</b>		
<40 years	150	46.3
40-60 years	113	34.9
>60 years	61	18.8
<b>Sex of respondent</b>		
Male	176	54.3
Female	148	45.7
<b>Religion of respondent</b>		
Christian	324	100.0
<b>Marital status of respondent</b>		
Married	297	91.7
Widowed\divorced	27	8.3
<b>Types of family</b>		
Nuclear	153	47.2
Joint	171	52.8
<b>Source of family income</b>		
Farming	99	30.6
Labor	12	3.7
Driving	15	4.6
Farming, labor	186	57.4
Business	12	3.7
<b>Annual income of family</b>		
< 10 thousand	96	29.6
10-20 thousand	218	67.3
>20 thousand	10	3.1
<b>Educational status of respondent</b>		
Literate	158	48.8
Illiterate	166	51.2
<b>Level of education</b>		
Primary	145	91.8
Secondary	13	8.2

The main religion of the people residing inside the majbang was Christian. The marital result showed the 91.7% of people were married and 8.3% were widowed. The family size result showed that 52.8% of people were living in joint family and 47.2% in nuclear family. The main income of the family was farming and labor (57.4%) followed by farming (30.6%), driving (4.6%), labor and business with same percentage (3.6%). The annual income results shows that (67.3%) people earned 10-20 thousand in a year, (29.6%) earned less than 10 thousand and (3.1%) earned more than 20 thousand. The result showed that the (51.2%) of respondent were illiterate and (48.8%) were literate, among the literate percentage the result showed highest respondent was with

primary education (91.8%) and (8.2%) with secondary education.

**Table 2: Blood pressure measurement**

Variable	Number	Percentage (%)
Normal (<120/80mmHg)	46	14.2
Pre hypertension (120-139/80-89mmHg)	163	50.3
Hypertensive (equal or more than 140/90mmHg)	115	35.5

The table 2 shows that half of the respondents (50.3%) were pre-hypertensive and (35.5%) were hypertensive and only few respondents (14.2%) were normal. Similarly, table 3 shows that among the respondent who had hypertension, majority of the

**Table 3: Association between demographic factors and hypertension**

Variables	Category	<120/80mmHg	120-139/80-89mmHg	equal or more than 140/90mmHg	p-value
<b>Age</b>	<40 years	27 (18.0%)	91 (60.7%)	32 (21.3%)	<b>.000*</b>
	40-60 years	8 (7.1%)	59 (52.2%)	46 (40.7%)	
	>60 years	11 (18.0%)	13 (21.3%)	37 (60.7%)	
<b>Sex</b>	Male	10 (5.7%)	108 (61.4%)	58 (33.0%)	<b>.000*</b>
	Female	36 (24.3%)	55 (37.2%)	57 (38.5%)	
<b>Family type</b>	Nuclear	18 (11.8%)	79 (51.6%)	56 (36.6%)	.494
	Joint	28 (16.4%)	84 (49.1%)	59 (34.5%)	
<b>Marital Status</b>	Married	42 (14.1%)	160 (53.9%)	95 (32.0%)	<b>.000*</b>
	Widowed	4 (14.8%)	3 (11.1%)	20 (74.1%)	
<b>Educational status</b>	Literate	26 (16.5%)	99 (62.7%)	33 (20.9%)	<b>.000*</b>
	Illiterate	20 (12.0%)	64 (38.6%)	82 (49.4%)	
<b>Annual income</b>	<10,000	25 (26.0%)	42 (43.8%)	29 (30.2%)	<b>.000*</b>
	>10,000	21 (9.2%)	121 (53.1%)	86 (37.7%)	

\*, significant at p < 0.005

respondent (60.7%) were above 60 years and the lowest (21.3%) were below 40 years. Among the respondent who had hypertension, majority of the respondent were female (38.5%) as compared to male (33.0%). Among the respondent who had hypertension, majority of the respondent were from nuclear family (36.6%) in comparison to joint family (34.5%). Among the respondent who had hypertension, majority of the respondent were widowed (74.1%) as compared to married (32.0%). Among the respondent who had hypertension, majority of the respondent were illiterate (49.4%) as compared to literate (20.9%). Among the respondent who had hypertension, majority of the respondent annual income was more than 10 thousand (37.7%) as compared to those whose annual income was less than 10 thousand (30.2%). Hence there was significant association between hypertension and socio-demographic characteristics as age (p-value, .000), sex (p-value, .000), marital status (p-value, .000), educational status (p-value, .000) and annual income (p-value, .000), which indicate that for controlling hypertension, Socio-demographic factors as age, sex, marital status, educational status, and annual income are the contributing factors. However family type was not associated with hypertension (p-value, .494)

## DISCUSSION

In context to present study the majority of the respondent (46.3%) were under 40 years and (18.8%) were in above 60 years with mean age 45.41 years and SD 13.52. More than half of the respondent (54.3%) were male and less than half (45.7%) were female. The entire respondents (100%) were Christian. Almost all of the respondents (91.7%) were married and only few (8.3%) were widowed.

Similarly, half of the respondent (52.8%) were living in joint family and (47.2%) were living in nuclear family. Similar finding was concluded by Katalambula et al in 2017 [4] in which (34.6%) were below 40 years and (15.8%) were above 60 years with mean age 40.7 years and SD=12.07 but the community based study done among adults in Ramechhap District by Chataut et al 2015 [12] found (39.8%) were males and (60.2%) were females. Similar study conducted in Tamil nadu by Nambi et al 2019 [13] found that (82.4%) were married and (11.4%) were widowed but in the same finding (56.8%) belong to nuclear family and about (30%) belonged to joint family.

This study evoked that among the literate respondent, (91.8%) were with primary education and few respondents (8.2%) were with secondary education. Similar findings was concluded by Katambula *et al.* in 2017 [4] that (81.2%) were educated up to a primary level. In contrast to this study done in adult population of Kancheepuram in 2019 showed that 30.2% had secondary education and 21.3% had higher secondary education [13].

The current study showed the association between hypertension and socio demographic variables like age, sex, marital status, educational status and annual income are significantly associated with hypertension, however family type is not associated with hypertension. Similar study done by Hasan et al in 2018 [1] showed that respondents' age, sex, education, place of residence, were found significantly associated with the status of hypertension. Dhungana et al 2016 study result showed that participants with lower educational status (primary and lower) were more likely to have hypertension [14]. In another study conducted in Surkhet by Khanal et al in 2017 showed that

hypertension was higher among the widowed, which revealed that hypertension is significantly correlated with marital and educational status [7]. Another similar study done in Tamilnadu, India in 2019 revealed that socio-demographic variables like age, marital status, education and family type had significantly correlation with hypertension but this study did not show association between family type and hypertension [13]. Similar study recently published in 2020 revealed that people with increasing level of income are at an increased risk of hypertension [15].

## CONCLUSION

The study conducted with the objective of assessing the prevalence and nutritional status of chepang people living in Majbang-09 of Kalika Municipality revealed that 35.5% were hypertensive and 50.3% of respondent were pre-hypertensive. The variables like age (p-value, .000), sex, marital status (p-value, .000), educational status (p-value, .000), annual income (p-value, .000) and marital status (p-value, .000) were found to be significantly associated with hypertension, whereas family type (p-value, .494) is not associated with hypertension. The prevalence of HTN among the Chepang population was found to be high; which indicates the need for HTN and obesity screening programs, especially for the elderly, people and obese population.

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**Correspondence to:**

Prof. Kshitiz Upadhyay Dhungel  
Professor, and Chairman  
Santwona Research centre,  
Santwona College  
Kathmandu, Nepal