



A Community-Based Descriptive Study On The Prevalence Of Hypertension In Adults (40–70 Years) In A Selected Urban Area Of District Mandi, Himachal Pradesh In 2025.

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Abstract

Background: Hypertension is one of the leading risk factors for cardiovascular morbidity and mortality worldwide. In India, its prevalence is steadily increasing, especially in urban areas due to lifestyle transitions.

Aim: The aim of the study was to determine the prevalence of hypertension among adults aged 40–70 years in an urban area of District Mandi, Himachal Pradesh, and to assess its association with selected socio-demographic variables.

Methods: A community-based descriptive study was conducted among 196 adults aged 40–70 years using convenient sampling. Data were collected using a structured socio-demographic proforma and blood pressure measurement (diastolic). Descriptive statistics (frequency, percentage, mean, SD) and inferential statistics (Chi-square test) were used for analysis.

Results: The mean diastolic blood pressure was 89.66 mmHg (SD = 8.11), ranging from 74–108 mmHg. A total of 86.2% of participants had elevated or hypertensive diastolic BP, with Stage 2 Hypertension (≥ 90 mmHg) being the most prevalent (52%). No significant associations were found between hypertension and socio-demographic variables such as age, gender, education, occupation, income, family history, personal habits, salt intake, or co-morbidities. However, a significant association was found between treatment status of hypertension and diastolic BP ($\chi^2 = 13.530, p = 0.004$).

Conclusion: The prevalence of hypertension in the study population was alarmingly high, particularly Stage 2 hypertension. Effective community-based interventions focusing on screening, awareness, lifestyle modification, and treatment adherence are urgently required.

Keywords: Hypertension, prevalence, diastolic blood pressure, community study.

1.Introduction

Hypertension, often termed the “silent killer,” is a major public health problem globally and the leading preventable risk factor for premature death. According to WHO (2021), an estimated 1.28 billion adults worldwide suffer from hypertension, with two-thirds living in low- and middle-income countries.¹

India is experiencing a rapid epidemiological transition, with hypertension prevalence rising due to sedentary lifestyles, dietary habits, and aging populations. NFHS-5 (2021) reported hypertension prevalence between 25–45% in urban adults. Uncontrolled hypertension contributes to stroke, coronary artery disease, renal failure, and increased healthcare burden.²

The present study was conducted to assess the prevalence of hypertension among adults aged 40–70 years in a selected urban area of District Mandi, Himachal Pradesh, and to evaluate its association with socio-demographic variables.

2.Materials and Methods

Research Approach: The research approach used for this study was the quantitative research approach, as the objective was to assess the prevalence of hypertension and its association with selected socio-demographic variables.

Research Design: A descriptive research design was adopted to determine the prevalence of hypertension in adults aged 40–70 years and to analyse its association with socio-demographic factors.

Research Setting: Adults aged 40–70 years residing in a selected urban area of District Mandi, Himachal Pradesh.

Sampling Technique & Sample Size: A convenient sampling technique was employed to select eligible adults aged 40–70 years who were permanent residents of the area and gave consent to participate in the study. A sample of 196 participants was calculated using Cochran’s Formula.

Inclusion Criteria: Adults aged 40–70 years who were permanent residents and consented to participate.

Exclusion Criteria: Individuals with severe cognitive or mental illness.

Tool for Data Collection

It included:

- **Section A:** Socio-demographic data (age, gender, education, occupation, income, lifestyle)
- **Section B:** Clinical Measurements-Blood Pressure Measurement was done three times at 5-minute intervals after 5 minutes rest in seated position. Separate recording was done for Systolic and Diastolic readings for each measurement. The mean of the three Blood Pressure Readings was calculated.
- **Section C:** Additional Information-Medication or Treatment for Hypertension and Other Relevant Health Conditions (e.g., Diabetes)
- **Blood Pressure Classification** – The Blood Pressure Classification was done with the help of WHO Blood Pressure Classification (Based on Average Readings).

Ethical Considerations: Ethical approval obtained from the Institutional Ethics Committee. Written informed consent was taken. Confidentiality and anonymity were ensured.

3.Data Analysis

Data were analysed using descriptive (frequency, percentage, mean, SD) and inferential statistics (Chi-square test). Significance level set at $p < 0.05$.

Organisation Of Analysed Data:

The analyzed data was organized according to the objectives and presented under the following sections:

Section A: Frequency and Percentage distribution of socio-demographic variables.

Section B: Frequency & Percentage distribution level of BP(Diastolic).

Section C: Association between Blood Pressure scores (Diastolic) with socio-demographic variables.

SECTION A-SOCIO-DEMOGRAPHIC PROFILE

Table No 1 : Socio-Demographic Profile Of The Participants

N=196

Variables	Options	Frequency Percentage(f%)
AGE (IN YEARS)	40–49	66(33.7%)
	50–59	89(45.4%)
	60–70	41(20.9%)
GENDER	Male	99(50.5%)
	Female	97(49.5%)
	Other	0(0.0%)
EDUCATIONAL STATUS	No formal education	20(10.2%)
	Primary	85(43.4%)
	Secondary	59(30.1%)
	Higher secondary and above	32(16.3%)
TYPE OF WORK	Sedentary	87(44.4%)
	Moderate physical activity	97(49.5%)
	Heavy physical activity	12(6.1%)

A total of **196 participants** were included in the study. The socio-demographic profile is summarized as follows:

- **Age Distribution:** The majority of participants were in the age group of **50–59 years (45.4%)**, followed by **40–49 years (33.7%)**, and **60–70 years (20.9%)**.
- **Gender:** The sample was nearly equally divided between males (**50.5%**) and females (**49.5%**), with no respondents identifying as other gender.
- **Educational Status:** A significant proportion of respondents had **primary education (43.4%)**, followed by **secondary education (30.1%)**, while **10.2%** had no formal education and **16.3%** had studied higher secondary and above.
- **Type of Work:** Nearly half of the participants were engaged in **moderate physical activity (49.5%)**, **44.4%** had a sedentary lifestyle, and only **6.1%** reported heavy physical activity.

Table No 2: Socio-Demographic Profile of The Participants

N=196

Variables	Options	Frequency Percentage(f%)
MONTHLY INCOME	< 10,000	87(44.4%)
	10,001–20,000	73(37.2%)
	20,001–30,000	36(18.4%)
	>30,000	0(0.0%)
MARITAL STATUS	Single	0(0.0%)
	Married	196(100%)
	Widowed/Divorced	0(0.0%)
FAMILY H/O HYPERTENSION	Yes	86(43.9%)
	No	110(56.1%)
PERSONAL HABITS	Smoking	24(12.2%)
	Alcohol use	32(16.3%)
	Both Smoking and Alcohol	15(7.7%)
	None	125(63.8%)
SALT INTAKE LEVEL	Normal	99(50.5%)
	High	61(31.1%)
	Unknown	36(18.4%)
TREATMENT OF HTN	Yes	43(21.9%)
	No	153 (78.1%)
OTHER HEALTH CONDITIONS	Yes	158(80.6%)
	No	38(19.4%)

A total of **196 participants** were included in the study. The socio-demographic profile is summarized as follows:

- **Monthly Income:** A majority (**44.4%**) reported a monthly income of less than ₹10,000, while **37.2%** earned between ₹10,001–20,000, and **18.4%** had income between ₹20,001–30,000. None reported income above ₹30,000.
- **Marital Status:** All participants were **married (100%)**, with no respondents reporting single, widowed, or divorced status.
- **Family History of Hypertension:** **43.9%** had a positive family history of hypertension, while **56.1%** reported no such history.
- **Personal Habits:** Most participants (**63.8%**) had no history of smoking or alcohol use. Among the rest, **12.2%** were smokers, **16.3%** consumed alcohol, and **7.7%** engaged in both habits.
- **Salt Intake:** More than half (**50.5%**) reported normal salt intake, while **31.1%** had high intake and **18.4%** were unsure of their salt consumption.
- **Treatment of Hypertension (HTN):** Only **21.9%** were on treatment for hypertension, while the majority (**78.1%**) were not receiving treatment.
- **Other Health Conditions:** A large proportion (**80.6%**) reported having other health conditions in addition to hypertension.

N=196

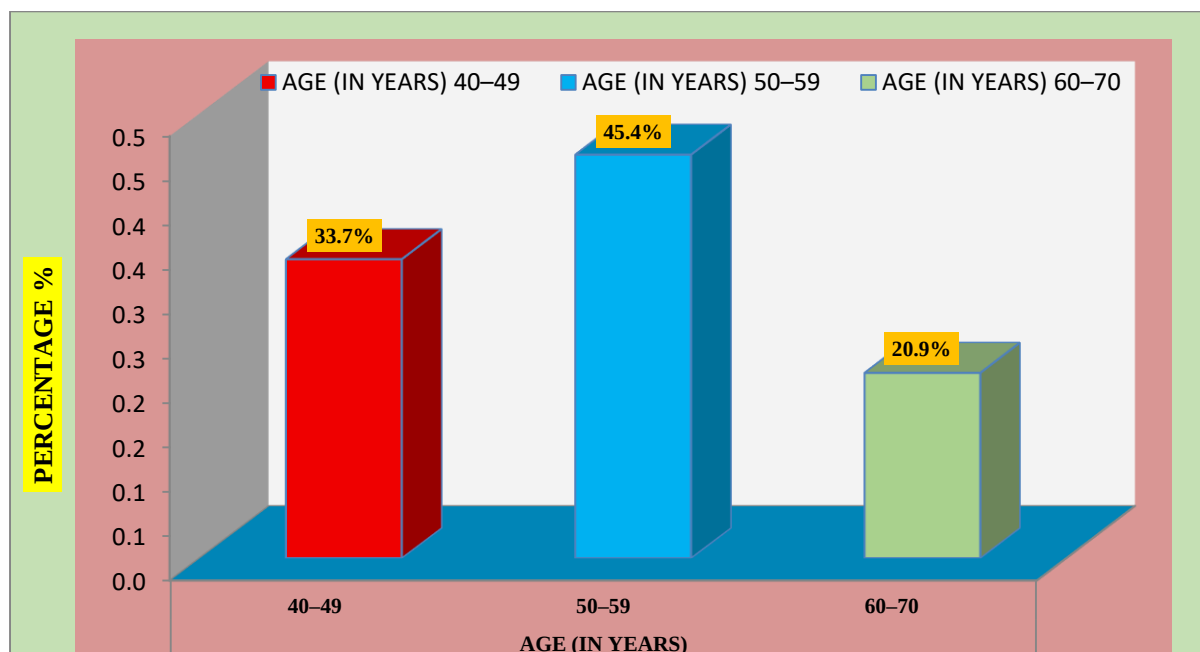


Figure No.1 Diagram showing the percentage distribution according to their AGE (IN YEARS)

The bar graph represents the percentage distribution of people in different age groups. It compares three age categories: 40–49 years, 50–59 years, and 60–70 years. The highest percentage is in the **50–59 years** age group (45.4%). The **40–49 years** group has 33.7%. The **60–70 years** group has the lowest percentage at 20.9%.

SECTION -B FREQUENCY AND PERCENTAGE DISTRIBUTION OF BLOOD PRESSURE

Table no.3 Criteria-wise Distribution of Diastolic BP Scores

N= 196

CRITERIA MEASURE OF BP (Diastolic) SCORE		
LEVEL OF SCORES N= 196	PERCENTAGE	FREQUENCY
STAGE 2 HTN.(≥90)	52.0%	102
STAGE 1 HTN.(85-89)	21.4%	42
ELEVATED.(81-85)	12.8%	25
NORMAL.(<-80)	13.8%	27

Out of **196 participants**, the distribution of **diastolic blood pressure (BP-Diastolic)** was as follows:

- Stage 2 Hypertension (≥90 mmHg):**

The largest group, **52.0% (102 participants)**, were in Stage 2 HTN, showing a very high prevalence of severe diastolic hypertension.

- Stage 1 Hypertension (85–89 mmHg):**

21.4% (42 participants) fell into Stage 1 HTN, reflecting a substantial burden of early diastolic hypertension.

- **Elevated (81–85 mmHg):**

12.8% (25 participants) were in the elevated range, a pre-hypertensive stage that signals risk progression.

- **Normal (<80 mmHg):**

Only **13.8% (27 participants)** had normal diastolic BP.

SUMMARY:

A striking **86.2% of participants had elevated or hypertensive diastolic BP**, with **Stage 2 HTN (52%)** being the most prevalent. This pattern indicates that diastolic hypertension is **more widespread and severe than systolic hypertension** in the study population, underlining the urgent need for **community-based interventions, early treatment, and lifestyle modifications**. As 86.2% of participants have hypertension. Therefore **H₀ is rejected and H₁ is accepted**.

N=196

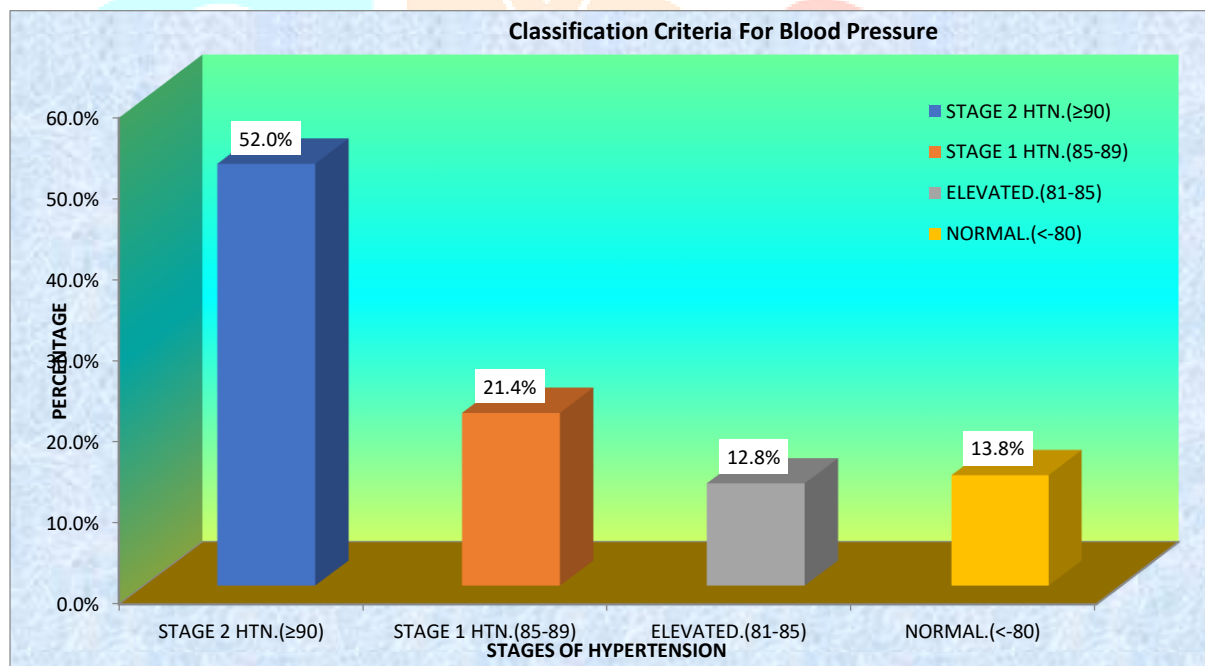


Figure no.2: Diagram showing the percentage distribution level of BP (Diastolic)

The bar graph titled "Classification Criteria For Blood Pressure" shows the distribution of a population across different stages of hypertension. It illustrates that the largest percentage of the population, **52.0%**, falls into the most severe category, **Stage 2 Hypertension** (with a diastolic blood pressure of ≥ 90 mmHg). The remaining categories are represented by significantly smaller percentages: **Stage 1 Hypertension** (85-89 mmHg) accounts for **21.4%**, **Elevated** (81-85 mmHg) is **12.8%**, and **Normal** (<80 mmHg) is the smallest group at **13.8%**. This data suggests a high prevalence of severe hypertension within the studied population.

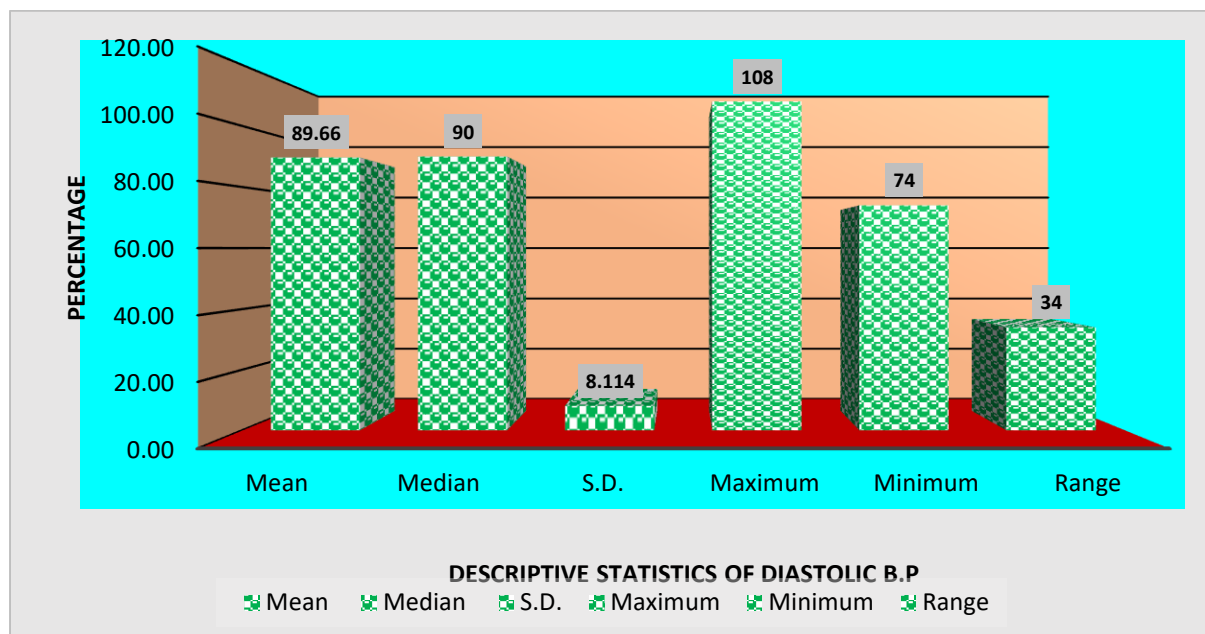
Table No.4 Descriptive Statistics of Blood Pressure (Diastolic)

N=196

Descriptive Statistics	Mean	Median	S.D.	Maximum	Minimum	Range
BP (Diastolic) SCORE	89.66	90	8.11	108	74	34

The mean diastolic BP was 89.66 mmHg (median 90, SD 8.11), ranging from 74–108 mmHg. On average, participants were in the **Stage 1 Hypertension** range, with several cases extending into **Stage 2 HTN**.

N=196

**Figure no.3: Diagram representing descriptive statistics level of BP (Diastolic)**

The bar graph represents the descriptive statistics of diastolic blood pressure (B.P.), showing key statistical measures as percentages. The mean diastolic B.P. is 89.66. The median is 90. The standard deviation (S.D.) is 8.114.

SECTION –C

Table No. 5 Showing Association Of Blood Pressure Scores And Socio-Demographic Variables

N=196

DEMOGRAPHIC DATA	ASSOCIATION WITH BP (Diastolic) SCORE				
Variables	Chi Test	P Value	df	Table Value	Result
Age (In Years)	1.879	0.930	6	12.592	Not Significant
Gender	1.299	0.729	3	7.815	Not Significant
Educational Status	6.392	0.700	9	16.919	Not Significant
Type Of Work	2.422	0.877	6	12.592	Not Significant
Monthly Income	1.117	0.981	6	12.592	Not Significant
Marital Status	NA	-	-	-	-
Family H/O Hypertension	0.301	0.960	3	7.815	Not Significant
Personal Habits	2.695	0.975	9	16.919	Not Significant
Salt Intake Level	0.723	0.994	6	12.592	Not Significant
Treatment Of Hypertension	13.530	0.004*	3	7.815	Significant
Other Health Conditions	0.472	0.925	3	7.815	Not Significant

KEY-(Significant p Value)

The table shows the association between diastolic blood pressure (BP) scores and various socio-demographic variables in a sample of 196 participants. The Chi-square test results indicate that most variables such as age, gender, educational status, type of work, monthly income, family history of hypertension, personal habits, salt intake level, and other health conditions have no significant association with diastolic BP scores, as their p-values are all above 0.05, making them statistically not significant. However, the variable "Treatment of Hypertension" shows a significant association with diastolic BP scores, with a Chi-square value of 13.530 and a p-value of 0.004, showing that the treatment status may influence BP control. Marital status data is not available (NA). Overall, only treatment of hypertension is significantly related to blood pressure scores in this population. Therefore, **H₀₁ is partially accepted.**

4. Discussion

The study revealed a very high prevalence of hypertension (86.2%), higher than national estimates (25–45%). The predominance of Stage 2 hypertension indicates poor detection, awareness, or control in the community.

The lack of association with socio-demographic factors suggests the multifactorial etiology of hypertension, involving complex interactions of genetics, stress, obesity, and lifestyle factors. However, the significant link with treatment underscores the importance of adherence and continuous management.

Similar findings were reported by Gupta (2004)³, Anchala et al. (2014)⁴, and Mills et al. (2021)⁵, who emphasized low treatment and control rates despite high prevalence.

5. Conclusion

Hypertension prevalence in this study population was alarmingly high, with more than half having Stage 2 hypertension. Only treatment status was significantly associated with blood pressure control. This highlights the urgent need for early screening, awareness, and adherence to treatment to prevent long-term complications.

6. Acknowledgement

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