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Estimation of Hypertension and Associated Risk Factors in a Community-Based Medical Camp in Jaipur- A Cross-Sectional Study

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Introduction

Hypertension is a major non-communicable disease and a leading risk factor for cardiovascular morbidity and mortality worldwide. Commonly referred to as the "Silent killer," it often remains asymptomatic until it manifests as severe complications such as stroke, ischemic heart disease, heart failure, and renal impairment. Despite the availability of effective diagnostic and therapeutic strategies, a large proportion of individuals with hypertension remain undiagnosed, particularly in developing countries like India, where healthcare access and awareness are variable.

The burden of hypertension in India has been steadily increasing due to rapid urbanization, changing dietary habits, sedentary lifestyles, and rising stress levels. However, awareness, treatment, and control rates continue to remain suboptimal. Early detection through opportunistic screening is therefore essential to reduce disease burden and prevent long-term complications.

Community-based medical camps serve as an effective strategy for screening and early identification of hypertension, especially in populations with limited access to routine healthcare services. These camps not only help in detecting previously undiagnosed cases but also provide an opportunity for health education and risk factor modification.

A free medical camp was organized on 24th March 2026 at St. Anselm's North City School. The camp was conducted in the church basement of the school premises and included consultations from specialists in general medicine, paediatrics, obstetrics and gynaecology, and other allied disciplines. The camp was attended by individuals from diverse age groups and socioeconomic backgrounds, providing a representative snapshot of the local community.

The present study aims to estimate the prevalence of hypertension among individuals attending this medical camp. It also seeks to identify newly diagnosed cases and assess associated demographic and clinical risk factors. The findings of this study are expected to highlight the significance of community-based screening initiatives in early detection and management of hypertension and to contribute to local epidemiological data that can inform future public health strategies.

According to the seventh report of the Joint National Committee (JNC-8), the prevalence of hypertension is such that more than two-thirds of individuals after the age of 65 are hypertensive.

Methodology

A cross-sectional study was conducted on 24th March 2026 at St. Anselm's North City School. The study population was individuals attending the medical camp aged ≥18 years. Blood pressure was measured using standard protocols, and demographic and clinical details were recorded. Hypertension was defined as systolic BP ≥140 mmHg and/or

diastolic BP ≥90 mmHg or prior diagnosis. Inclusion criteria were all the individuals more than the age of 18 years who attended the camp. After obtaining written informed consent the Blood Pressure readings were noted down. With the help of a mercury sphygmomanometer and stethoscope, blood pressure measurement was taken in a sitting position after 5 minutes of rest. Korotkoff sounds 1 and 5 were considered systolic and diastolic blood pressure (BP), respectively. After taking such 3 readings, the mean of these readings was considered as the final BP record. The individuals were labelled as hypertensive / non-hypertensive as per JNC-8 criteria and / or if they were already on anti-hypertensive medications on the basis of history given.

Data was entered in a Microsoft Excel spreadsheet. For statistical analysis, SPSS version 26.0 (trial version) software was used.

Results

A total of **102 participants** were included in the study, comprising **64 males (62.7%)** and **38 females (37.3%)**.

Prevalence of Hypertension

Out of the total participants, **29 individuals were found to be hypertensive**, giving an overall prevalence of **28.4%**.

- Among males, **19 out of 64** were hypertensive (**29.7%**)
- Among females, **10 out of 38** were hypertensive (**26.3%**)

Known vs Newly Diagnosed Cases

- Among hypertensive males, **10 (52.6%)** were previously diagnosed cases, while **9 (47.4%)** were newly detected during the camp
- Among hypertensive females, **4 (40%)** were known cases, while **6 (60%)** were newly diagnosed

Overall, **15 out of 29 hypertensive individuals (51.7%) were newly diagnosed**, highlighting a substantial burden of undetected hypertension in the community.

Treatment and Control Status

- All known hypertensive individuals (both males and females) were on treatment
- Among known hypertensive males, **6 out of 10 (60%)** had controlled blood pressure
- Among known hypertensive females, **none had controlled blood pressure (0%)**

Age Distribution

- All known hypertensive cases were aged **above 40 years**

Risk Factors

- **Family history:** Present in **100% of hypertensive individuals**
- **Obesity:** Observed in **3 known hypertensive males**
- **Smoking: 2 known hypertensive males** were chronic smokers

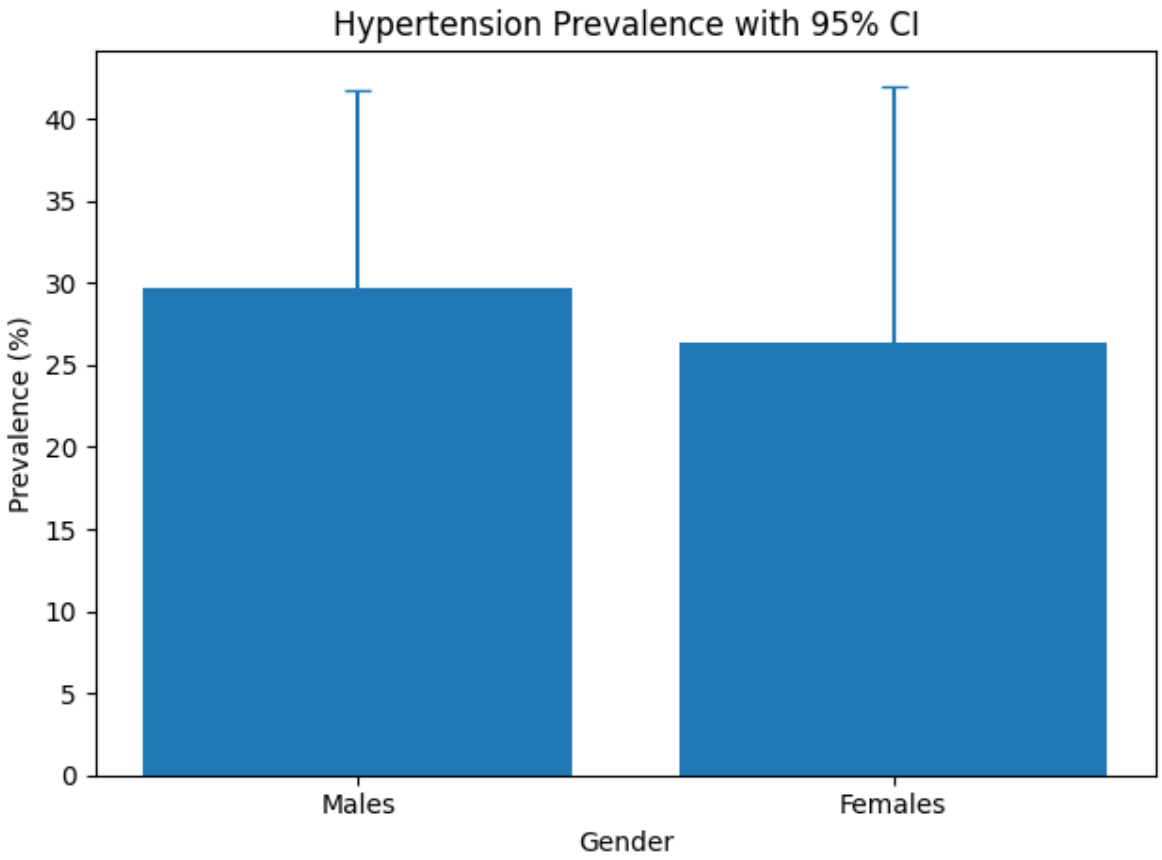

Table 1: Demographic Characteristics

Category	Number
Total Participants	102 (100%)
Males	64 (62.7%)
Females	38 (37.3%)

Table 2: Chi-square tests

Test	Value	df	p-value
Pearson Chi-Square	0.14	1	0.70

Interpretation:
There is **no statistically significant association** between gender and hypertension in this study.

Table 3: Prevalence of Hypertension

Category	Total	Hypertensive	Percentage
Males	64	19	29.7
Females	38	10	26.3
Overall	102	29	28.4

Table 4 : Control Status by gender

Gender	Controlled	Uncontrolled
Males	6	4
Females	0	4

Table 5 : Fisher exact test

Test	p-value
Fisher's Exact Test	0.04

Interpretation:
There is a **statistically significant difference in BP control between males and females**, with females showing poorer control.

Statistical analysis revealed no significant association between gender and hypertension ($\chi^2 = 0.14$, $p = 0.70$). However, a significant difference was observed in blood pressure control among known hypertensive cases between males and females (Fisher's exact test, $p = 0.04$), with females demonstrating poorer control. The overall prevalence of hypertension was 28.4% (95% CI: 20.4–37.9). A high proportion (51.7%) of newly diagnosed cases highlights the hidden burden of hypertension in the community.

Discussion

The present study demonstrates a **high prevalence (28.4%) of hypertension** among individuals attending a community-based medical camp, reflecting the growing burden of non-communicable diseases in India. This prevalence is consistent with findings from similar community-based studies, indicating that hypertension remains a significant public health concern.

A noteworthy finding of this study is that **more than half (51.7%) of hypertensive cases were newly diagnosed**, emphasizing the silent nature of the disease and the lack of routine screening in the general population. This underscores the importance of **opportunistic screening through medical camps**, especially in semi-urban and underserved areas.

Gender-wise analysis revealed a slightly higher prevalence among males (29.7%) compared to females (26.3%), which aligns with existing literature suggesting higher cardiovascular risk profiles among males due to lifestyle-related factors such as smoking and occupational stress.

Despite **100% treatment coverage among known hypertensive individuals**, blood pressure control was suboptimal, particularly among females, where **none of the known cases had controlled blood pressure**. This suggests potential issues related to treatment adherence, inadequate dosing, lack of follow-up, or lifestyle factors, highlighting the gap between treatment and effective control.

All known hypertensive individuals were above 40 years of age, reinforcing age as a significant risk factor. Additionally, the presence of **family history in all hypertensive individuals** suggests a strong genetic predisposition in this population. Lifestyle-related risk factors such as **obesity and smoking**, observed among male participants, further contribute to disease burden.

The study highlights the effectiveness of community-based medical camps, such as the one conducted at St. Anselm's North City, in identifying undiagnosed cases and generating valuable epidemiological data.

Limitations

- Cross-sectional design limits causal inference
- Small sample size
- Selection bias (camp-based population)

Conclusion

Hypertension is highly prevalent in the studied population, with a significant proportion of undiagnosed cases. While treatment rates are high, control rates remain suboptimal, particularly among females. Community-based screening programs are essential for early detection and should be strengthened alongside follow-up care systems.

Recommendations

- Regular community screening programs
- Strengthening follow-up and treatment adherence
- Lifestyle modification awareness programs
- Integration with national NCD programs

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