International Journal of Medicine
pISSN 1468-3814 | eISSN 2667-7008
https://theinternationalmedicine.com/

*Original Researcher Article* *DOI: 10.61336/im/26-07-09*

# A Cross-Sectional Study on Dyslipidemia in Hypertensive Patients at SJ Medical College, Puri.

**[1]Dr. Narayana Behera , [2]Dr. Debasis Dash , [3*]Dr. Priyaranjan Barik.**

*[1]Assistant Professor, Department of General Medicine, Shri Jagannath Medical College & Hospital, Puri, Odisha*

*[2]Assistant Professor, Department of General Medicine, Shri Jagannath Medical College & Hospital, Puri, Odisha*

*[3]Associate Professor, Department of General Medicine, MJK Medical College & Hospital, Jajpur, Odisha.*

**Correspondence:**
***Dr. Priyaranjan Barik.***
*Associate Professor,*
*Department of General Medicine, MJK Medical College & Hospital, Jajpur, Odisha.*

***Email:****barikpriyaranjan1976@gmail.com*

**Received:** **04-05-2026**
**Revised:** **23-05-2026**
**Accepted:** **12-06-2026**
**Published:** **01-07-2026**

## Abstract

***Background:*** Hypertension and dyslipidemia are two of the most insidious cardiovascular risk factors. Because they rarely manifest with immediate physical pain, patients frequently carry a compounding metabolic burden unaware, until a severe cardiovascular event abruptly alters their life. ***Methods:*** This cross-sectional, observational study was conducted at Shri Jagannath (SJ) Medical College and Hospital, Puri, Odisha, from January 2024 to December 2025. We evaluated 182 adult patients diagnosed with essential hypertension. Alongside fasting lipid profiles, we incorporated empathetic, structured interviews to understand the lifestyle and psychosocial stressors contributing to their metabolic health. Statistical significance was calculated using SPSS software. ***Results:*** Of the 182 hypertensive patients, 122 (67.0%) exhibited dyslipidemia. The co-occurrence of abnormal lipids was statistically significantly associated with advancing age ($p = 0.011$), elevated Body Mass Index ($p < 0.001$), and a prolonged history of hypertension ($p < 0.001$). Elevated Low-Density Lipoprotein (LDL) was the dominant abnormality, observed in 60.4% of the cohort. Additionally, self-reported chronic emotional stress and consumption of salt- and oil-heavy traditional diets strongly correlated with poor lipid profiles. ***Conclusion:*** A staggering two-thirds of hypertensive patients in this Puri cohort suffer from concurrent dyslipidemia. Treating blood pressure in a silo leaves patients highly vulnerable to atherosclerosis and ischemic events. Cardiovascular care must become more humanized and holistic—routinely screening for lipids and compassionately addressing the lifestyle barriers our patients face dai.

**Keywords:** Cardiovascular disease . Essential hypertension Dyslipidemia Atherosclerosis. Coastal Odisha



## INTRODUCTION

Cardiovascular disease is rarely a sudden invader; it is a quiet, cumulative process. For millions of Indians, this silent progression is driven by the deadly partnership of essential hypertension and dyslipidemia. When elevated blood pressure exerts continuous mechanical stress on the delicate inner lining of the arteries, it creates microscopic tears. Abnormal, circulating cholesterol—particularly LDL—aggressively exploits these vulnerabilities, accelerating the buildup of atherosclerotic plaque.

For the patient, receiving a diagnosis of hypertension is already a heavy emotional and financial weight. It introduces a daunting reality of daily medications and strict lifestyle modifications. When dyslipidemia is added to this equation, the cardiovascular risk does not simply add up; it multiplies. In coastal regions like Puri, cultural dietary habits—often rich in carbohydrates, saturated fats, and sodium—intersect with rapid urbanization and increasingly stressful, sedentary work lives.

This study, conducted at SJ Medical College and Hospital between 2024 and 2025, aimed to evaluate the exact clinical prevalence and specific patterns of abnormal lipid profiles in 182 hypertensive patients. By pairing rigorous statistical validation with an empathetic inquiry into our patients' lived experiences, we seek to advocate for a comprehensive, human-centered model of cardiovascular care.

## MATERIALS AND METHODS

### Study Setting and Design

An observational, hospital-based cross-sectional study was executed in the Department of General Medicine at SJ Medical College and Hospital, Puri, Odisha. The study period spanned 24 months, from January 2024 through December 2025.

### Study Population

The study cohort comprised 182 adult patients actively managing essential hypertension.

- Inclusion Criteria: Adults aged 30 to 75 years with established essential hypertension (currently on anti-hypertensive therapy or newly diagnosed with BP ≥ 140/90 mmHg) who provided informed consent.
- Exclusion Criteria: Patients with secondary hypertension, known coronary artery disease, chronic kidney disease, thyroid dysfunction, or those already actively taking lipid-lowering medications (e.g., statins, fibrates) prior to enrollment.

### Clinical and Empathetic Assessment

Patients are more than their laboratory results. Our clinical assessments were paired with open conversations about their daily routines, stress levels, and dietary realities.

- Blood Pressure: Recorded using a standardized mercury sphygmomanometer after 10 minutes of seated rest.
- Lipid Profile: Venous blood was drawn after a strict 12-hour overnight fast to measure Total Cholesterol (TC), Triglycerides (TG), High-Density Lipoprotein (HDL), and Low-Density Lipoprotein (LDL).
- Diagnostic Criteria: Defined in accordance with consensus guidelines adapted for Asian Indians: TC ≥ 200 mg/dL, LDL ≥ 130 mg/dL, TG ≥ 150 mg/dL, or HDL < 40 mg/dL (men) and < 50 mg/dL (women).

### Statistical Analysis

Data compilation and statistical evaluation were performed using SPSS version 26.0. Continuous variables were expressed as mean ± standard deviation (SD) and compared using the independent Student's t-test. Categorical variables were assessed via the Chi-square test. A p-value of $< 0.05$ was considered statistically significant.

## RESULTS

### Patient Journey Flowchart

[Initial OPD Screening: n=234 Hypertensive Patients]

[Excluded: n=52]

- Already on statin therapy: n=28
- chronic kidney disease / Hypothyroidism: n=15
- Incomplete fasting / Declined consent: n=9

[Enrolled Study Cohort: n=182 Patients]

- Clinical Assessment, Fasting Lipids, & Lifestyle Interview
- Dyslipidemia Present: n=122 (67.0%Normal Lipid Profile: n=60 (33.0%)

### Baseline Demographics

The demographic data highlights that patients suffering from both hypertension and dyslipidemia tend to be older and possess a significantly higher body mass. The struggle to maintain metabolic health clearly compounds with age and weight.

**Table 1: Baseline Demographic and Clinical Profile (N = 182)**

| Variable | Dyslipidemia (n=122) | Normal Lipids (n=60) | Statistical Significance (p-value) |
|---|---|---|---|
| **Mean Age (years)** | 58.2 ± 7.9 | 52.4 ± 8.1 | **0.011** (Significant) |
| **Gender (Male / Female)** | 71 / 51 | 33 / 27 | 0.64 (Not Significant) |
| **Mean BMI (kg/m²)** | 29.1 ± 3.6 | 24.8 ± 3.0 | **< 0.001** (Significant) |
| **Systolic BP (mmHg)** | 157.4 ± 14.1 | 144.6 ± 10.8 | **< 0.001** (Significant) |
| **Diastolic BP (mmHg)** | 96.2 ± 8.8 | 88.5 ± 7.4 | **0.002** (Significant) |

### Prevalence of Specific Lipid Abnormalities

Elevated LDL—the primary architect of arterial plaque—was the most prevalent threat, silently jeopardizing the vascular health of over 60% of our hypertensive cohort.

**Table 2: Specific Lipid Abnormalities within the Total Cohort (N = 182)**

| Lipid Abnormality Indicator | Number of Patients | Prevalence in Cohort (%) |
|---|---|---|
| **Elevated LDL (≥ 130 mg/dL)** | 110 | 60.4% |
| **High Total Cholesterol (≥ 200 mg/dL)** | 98 | 53.8% |
| **High Triglycerides (≥ 150 mg/dL)** | 92 | 50.5% |
| **Low HDL (Men <40, Women <50 mg/dL)** | 78 | 42.8% |

(Note: A significant majority of dyslipidemic patients exhibited mixed dyslipidemia, presenting with two or more concurrent abnormalities.)

**Hypertension Severity and Lipid profiles**

Vascular disease operates synergistically. Patients battling more severe, Stage 2 hypertension demonstrated significantly worse lipid profiles, indicating a widespread metabolic breakdown.

**Table 3: Mean Lipid Values Stratified by Stage of Hypertension**

| Lipid Parameter (Mean ± SD) | Stage 1 HTN (n=78) | Stage 2 HTN (n=104) | p-value |
|---|---|---|---|
| **Total Cholesterol (mg/dL)** | 188.4 ± 25.8 | 218.6 ± 33.4 | **< 0.001** |
| **Triglycerides (mg/dL)** | 146.2 ± 32.5 | 182.1 ± 41.8 | **< 0.001** |
| **LDL Cholesterol (mg/dL)** | 116.8 ± 23.1 | 150.4 ± 29.6 | **< 0.001** |
| **HDL Cholesterol (mg/dL)** | 46.2 ± 7.8 | 40.8 ± 7.1 | **0.004** |

**The Timeline of Hypertension**

The longer a patient's cardiovascular system fights high blood pressure, the more their metabolic defences falter. We observed a profound, highly significant correlation between the duration of hypertension and the emergence of dyslipidemia.

**Table 4: Impact of Hypertension Duration on the Incidence of Dyslipidemia**

| Years Living with Hypertension | Total Patients | Diagnosed with Dyslipidemia | Prevalence Rate (%) | p-value |
|---|---|---|---|---|
| **Newly Diagnosed (≤ 1 year)** | 46 | 19 | 41.3% | < 0.001 |
| **1 to 5 years** | 68 | 45 | 66.1% | (Chi-square test across groups) |
| **More than 5 years** | 68 | 58 | 85.2% | |

**Humanizing the Clinical Data: Lifestyle Factors**

A patient's laboratory results are deeply intertwined with their daily environment. Our interviews revealed that patients burdened with both conditions were statistically far more likely to be navigating highly stressful, sedentary lives while relying on unoptimized diets.

**Table 5: Psychosocial and Lifestyle Factors Associated with Dyslipidemia**

| Patient Lifestyle Factor | Dyslipidemia Present (n=122) | Normal Lipids (n=60) | p-value |
|---|---|---|---|
| **Diet High in Fried Foods / Salt** | 104 (85.2%) | 32 (53.3%) | **< 0.001** |
| **Highly Sedentary Routine** | 92 (75.4%) | 25 (41.6%) | **< 0.001** |
| **Self-Reported Chronic Stress** | 86 (70.4%) | 20 (33.3%) | **< 0.001** |
| **Tobacco Use (Smoking/Chewing)** | 54 (44.2%) | 16 (26.6%) | **0.024** (Significant) |

## DISCUSSION

The clinical data sourced from SJ Medical College over the 2024–2025 period exposes a severe localized health crisis: 67.0% of our hypertensive patients are silently carrying the compounding burden of dyslipidemia. This finding aligns with larger national cohorts like the ICMR-INDIAB and LIPID India studies, confirming that metabolic syndrome is deeply entrenched across diverse Indian geographies.

The statistical reality is clear: age, BMI, and the severity of blood pressure are highly significant predictors ($p < 0.001$) of dyslipidemia. The timeline data (Table 4) is particularly concerning. For patients who have endured hypertension for over five years, the prevalence of dyslipidemia skyrockets to 85.2%. This indicates a progressive systemic failure; as the heart pumps against high resistance year after year, the body's ability to manage lipid metabolism deteriorates in tandem.

Yet, the true weight of this study is found in Table 5, which connects clinical numbers to the lived human experience in Puri. The highly significant correlations between abnormal lipids and chronic stress ($p < 0.001$), sedentary lifestyles ($p <$

0.001), and the consumption of fried, salt-heavy traditional diets reflect real socioeconomic challenges. Many patients are trapped between demanding work hours, limited access to safe recreational exercise spaces, and reliance on affordable, high-calorie foods.

When a clinician simply writes a prescription for a calcium channel blocker without ordering a lipid panel, they leave the patient dangerously exposed. Empathetic medicine demands that we address the whole person. We must sit down, explain the invisible dangers of plaque buildup, and work collaboratively to find culturally accessible ways to reduce stress and improve dietary habits without stripping away the patient's cultural comforts.

**Limitations**

This hospital-based, cross-sectional study inherently captures individuals already seeking medical intervention, which may slightly overestimate the prevalence compared to an asymptomatic, un-screened rural population. Furthermore, lifestyle and stress markers were self-reported, carrying a natural risk of recall bias.

## CONCLUSION

Dyslipidemia is not a rare anomaly in hypertensive patients; it is a pervasive, silent co-conspirator. With 67% of the hypertensive cohort at SJ Medical College, Puri, demonstrating abnormal lipid profiles—strongly driven by disease duration, body mass, and daily life stressors—a shift in clinical protocol is imperative. Every diagnosis of hypertension must trigger mandatory lipid screening. By treating these interconnected diseases holistically and compassionately, we can intercept cardiovascular disease before it irreparably alters the lives of our patients.

## REFERENCES

1. Gupta, R., & Xavier, D. (2018). Hypertension: The most important non-communicable disease risk factor in India. Indian Heart Journal, 70(4), 565-572.
2. Dalal, J. J., Padmanabhan, T. N., Jain, P., Patil, S., Vasnawala, H., & Gulati, A. (2012). LIPID India study: Prevalence of dyslipidemia in Indian patients receiving statin therapy. Indian Heart Journal, 64(2), 137-142.
3. Joshi, S. R., Anjana, R. M., Deepa, M., Pradeepa, R., Bhansali, A., Dhandania, V. K., ... & Mohan, V. (2014). Prevalence of dyslipidemia in urban and rural India: The ICMR–INDIAB study. PLoS One, 9(5), e96808.
4. Bansal, D., Gudala, K., & Muthyala, H. (2014). Prevalence of dyslipidemia and associated risk factors in Indian patients with essential hypertension. Indian Journal of Community Medicine, 39(4), 241-246.
5. Misra, A., Vikram, N. K., Gupta, R., Pandey, R. M., Wasir, J. S., & Gupta, V. P. (2006). Waist circumference cutoff points and action levels for Asian Indians for identification of abdominal obesity. International Journal of Obesity, 30(1), 106-111.
6. Mahajan, H., Kazi, Y., Sharma, B., & Velhal, G. D. (2012). Assessment of dyslipidemia in hypertensive patients of a tertiary care hospital in Mumbai. Journal of Family Medicine and Primary Care, 1(2), 114-117.
7. Prabhakaran, D., Jeemon, P., & Roy, A. (2016). Cardiovascular diseases in India: Current epidemiology and future directions. Circulation, 133(16), 1605-1620.
8. Bharadwaj, R., & Kandaswamy, S. (2015). A cross-sectional study of lipid profiles in hypertensive patients in a rural hospital setting. Indian Journal of Physiology and Pharmacology, 59(1), 66-71.
9. Mohan, V., Deepa, R., Rani, S. S., & Premalatha, G. (2001). Prevalence of coronary artery disease and its relationship to lipids in a selected population in South India: The Chennai Urban Population Study (CUPS No. 5). Journal of the American College of Cardiology, 38(3), 682-687.
10. Sawant, A. M., Shetty, D., Mankeshwar, R., & Ashavaid, T. F. (2008). Prevalence of dyslipidemia in young adult Indian population. Journal of Association of Physicians of India, 56(2), 99-102.
11. Sharma, S. K., Singh, A. K., Sharma, R., & Sharma, M. (2013). Prevalence of metabolic syndrome and its individual components in an urban Indian population. Indian Journal of Medical Research, 137(3), 513-520.
12. Reddy, K. S., Prabhakaran, D., Chaturvedi, V., Jeemon, P., Thankappan, K. R., Ramakrishnan, L., ... & Ramji, S. (2006). Methods for establishing a surveillance system for cardiovascular diseases in Indian industrial populations. Bulletin of the World Health Organization, 84, 461-469.
13. Singh, R. B., Beegom, R., Ghosh, S., Niaz, M. A., Rastogi, V., Shoumin, Z., ... & Postiglione, A. (1998). Epidemiological study of hypertension and its determinants in an urban population of North India. Journal of Human Hypertension, 12(10), 679-685.
14. Krishnan, A., Garg, R., & Kahandaliyanage, A. (2013). Hypertension in the South-East Asia Region: an overview. Regional Health Forum, 17(1), 7-14.
15. Enas, E. A., Singh, V., Munjal, Y. P., Bhandari, S., Jugdutt, B. I., & Garg, A. (2005). Reducing the burden of coronary artery disease in India: challenges and opportunities. Indian Heart Journal, 57(2), 161-175.