



BURDEN OF HYPERTENSION

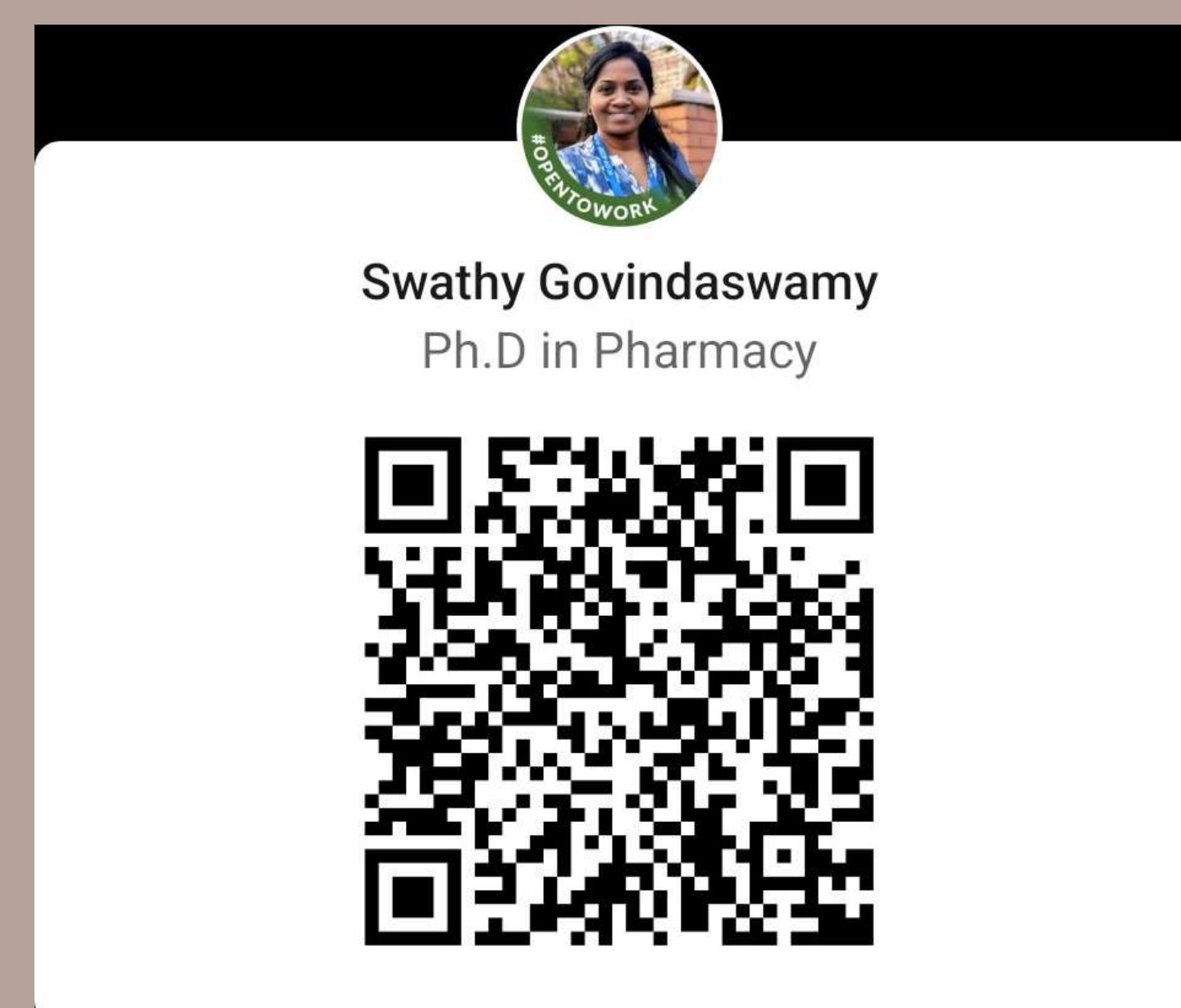
AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS IN INDIA: EVIDENCE FROM A SYSTEMATIC REVIEW, META-ANALYSIS, AND REAL-WORLD OBSERVATIONAL STUDY

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Key Finding: Hypertension is highly prevalent among Indian patients with Type 2 Diabetes Mellitus, particularly in older adults and urban populations, highlighting the need for integrated cardiovascular risk screening and management

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INTRODUCTION

Hypertension is a major comorbidity in patients with Type 2 Diabetes Mellitus and significantly increases cardiovascular risk.

India faces a growing burden of diabetes and hypertension due to rapid urbanization and lifestyle changes.

Reliable national estimates and real-world evidence are essential for integrated disease management.

OBJECTIVES

Primary Objective

To estimate the national burden of hypertension among patients with T2DM in India using published evidence.

Secondary Objective

To compare pooled prevalence findings with real-world hospital-based data and identify factors associated with hypertension.

METHODS

Phase I: Systematic Review and Meta-analysis

Conducted according to PRISMA guidelines.

Registered in PROSPERO.

Included observational studies reporting hypertension prevalence among Indian adults with T2DM.

Random-effects model (DerSimonian-Laird) used for pooled prevalence estimation.

Subgroup analysis performed based on residence (urban vs rural).

Phase II: Hospital-Based Observational Study

Prospective observational study including **500 adults** with T2DM.

Hypertension prevalence estimated from hospital records.

Multivariable logistic regression used to determine associated factors:

- Age, Sex, HbA1c, Smoking, Alcohol use

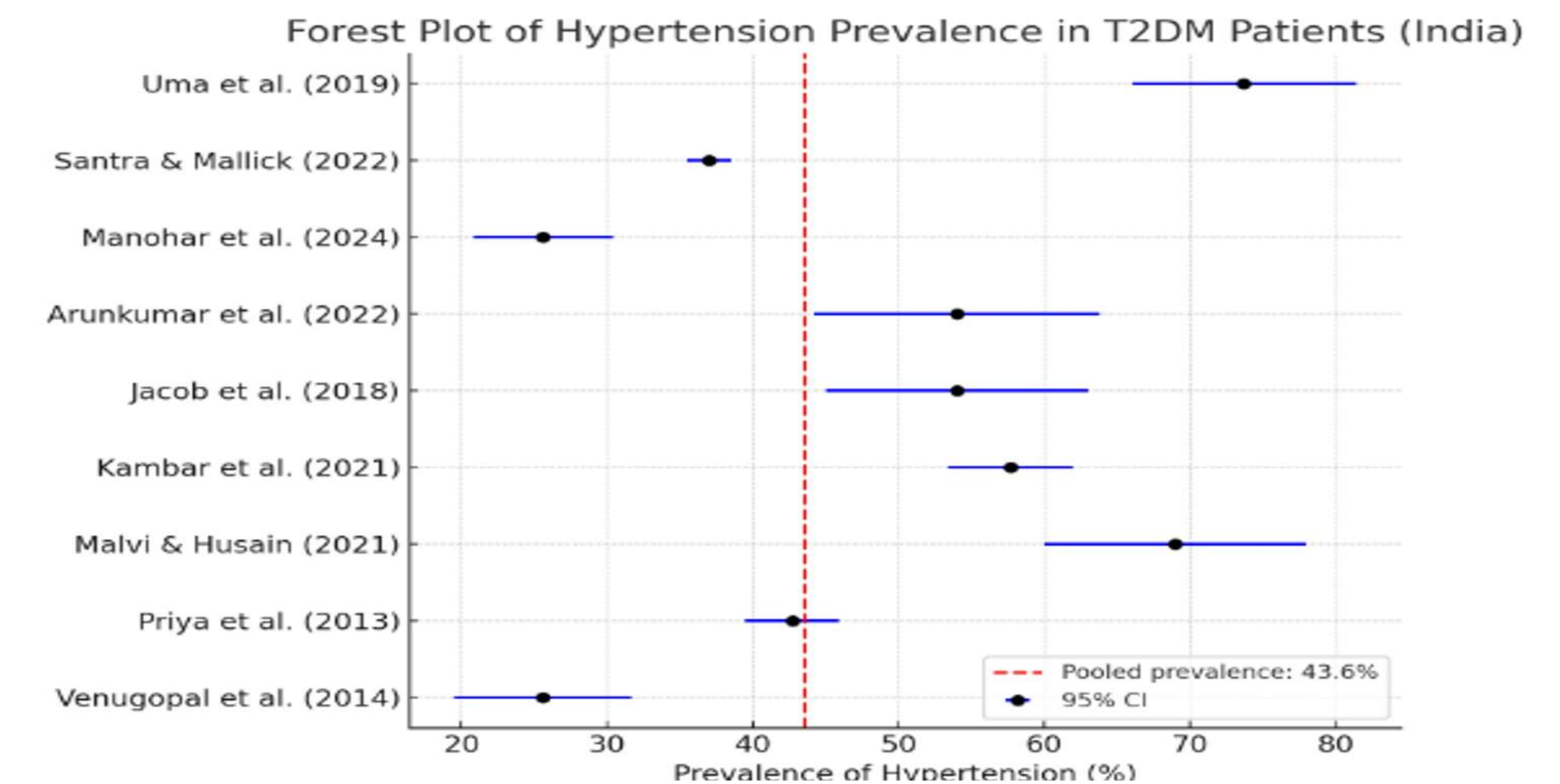
RESULTS

Meta-analysis Findings - **9 Indian studies** included.

Pooled prevalence of hypertension: **43.6%** (95% CI: 38.0–49.0%)

High heterogeneity observed: **I² = 87%**

Residence	Prevalence	95% CI
Urban	59.2%	50.4–68.0%
Rural	47.1%	38.3–55.9%



Hospital Cohort Findings

Hypertension prevalence: **63.6% (318/500)**

Variable	Adjusted OR	95% CI	p-value
Age	1.07 per year	1.04–1.08	<0.001
Sex	—	—	0.51
HbA1c	—	—	0.92
Smoking	—	—	0.06
Alcohol	—	—	0.33

DISCUSSION

Nearly half of Indian patients with T2DM are affected by hypertension.

Urban populations demonstrated substantially higher prevalence.

Hospital-based prevalence exceeded pooled national estimates, suggesting greater disease burden in tertiary care settings.

Age emerged as the strongest predictor of hypertension.

CONCLUSION

Hypertension represents a major comorbidity among Indian patients with T2DM. Urban residency and advanced age contribute significantly to increased prevalence.

Integrated diabetes–hypertension management strategies are urgently needed to reduce cardiovascular risk in India.