

# Cardiovascular Outcomes in South Asians with Coronary Heart Disease – Preliminary Results from the PRACTICE Registry

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## BACKGROUND

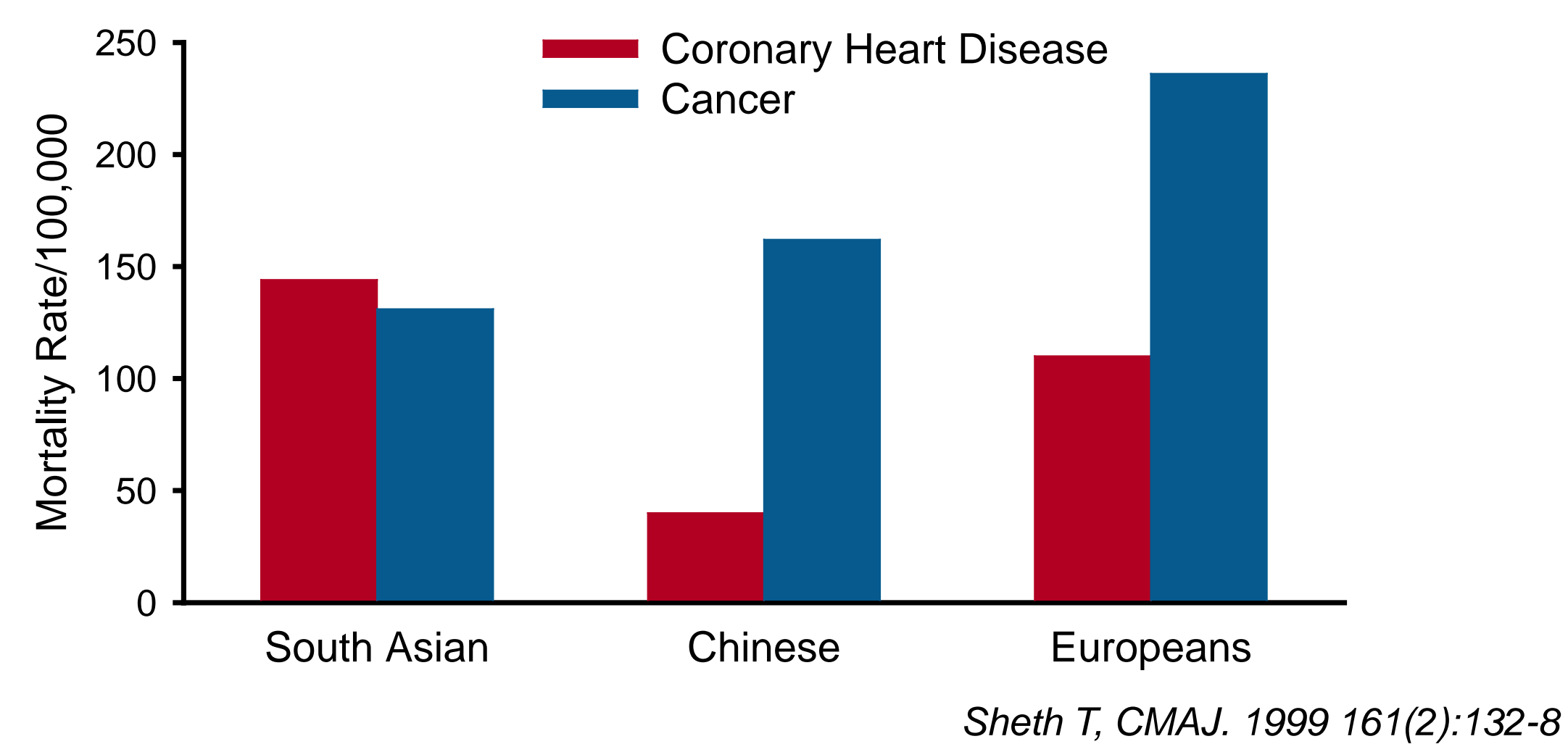
According to the 2006 Canadian Census, South Asians are the country's largest and fastest growing visible minority group

	All visible minorities	South Asian	% Pop'n	Δ '01-'06	Chinese	% Pop'n	Δ '01-'06
CA	5,068,090	1,262,865	4.0	37.7	1,216,570	3.9	18.2
ON	2,745,205	794,179	6.6	43.1	576,980	4.8	19.8
BC	1,008,855	262,290	6.4	24.7	407,225	10.0	11.4

South Asians have a unique cardiovascular risk profile

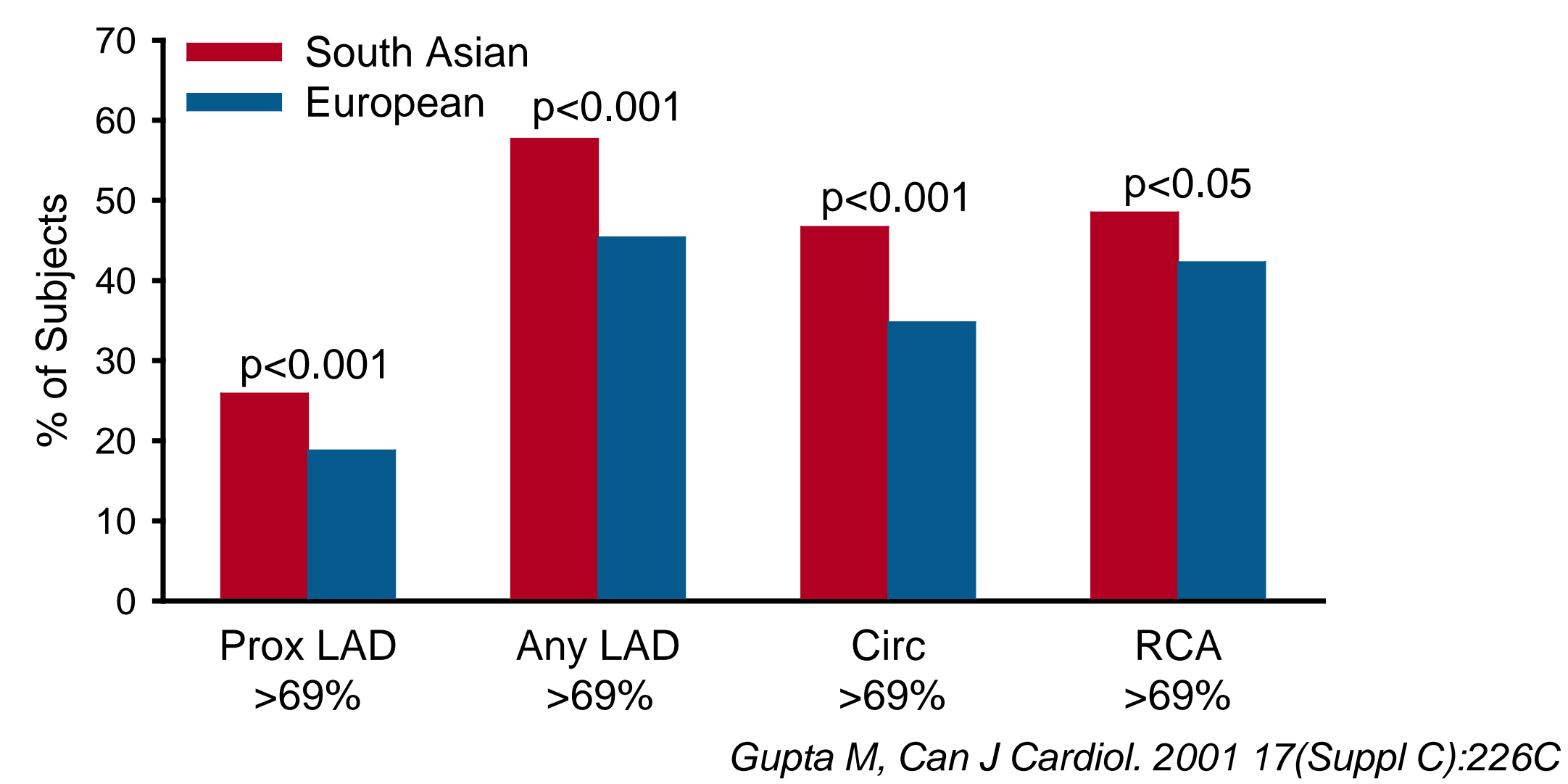
*Anand SS, Lancet. 2000 356(9226):279-84*

South Asians have a higher coronary heart disease mortality rate than other groups in Canada



*Sheth T, CMAJ. 1999 161(2):132-8*

SA have more severe coronary artery disease at angiography



*Gupta M, Can J Cardiol. 2001 17(Suppl C):226C*

SA ethnicity is an independent predictor of mortality following CABG

Variable	Odds Ratio	95% CI
Increasing age	1.1	1.05-1.15
Unstable angina	1.9	1.2-3.0
Hypertension	2.5	1.0-6.8
LVEF <40%	12.2	3.3-44.9
South Asian ethnicity	3.1	1.4-6.8

*Brister SJ, J Thorac Cardiovasc Surg. 2007 133(1):150-154*

## OBJECTIVES

Exploratory pilot study to prospectively evaluate 5-year CV outcomes in South Asian and European Canadians with CAD

- Primary endpoint: composite of CV death, non-fatal MI, non-fatal stroke, CABG or percutaneous coronary intervention (PCI)
- Main secondary endpoint: composite of CV death, non-fatal MI and non-fatal stroke

## METHODOLOGY

### Study Setting and Cohort

A prospective, single-centre, observational registry of patients with documented CAD – the PRospective Assessment of Cardiovascular risk and Treatment In Canadians of varying Ethnicity (PRACTICE) registry

Consecutive recruitment of 199 South Asians and 315 European Canadians (514 patients) in 2004

### Inclusion Criteria

- Prior MI, PCI, CABG surgery or Angiographic stenosis >50%
- All patients were treated according to guideline recommendations with evidence-based therapies

### Statistical Analysis

Table 1, 2 and 3 are descriptive statistics (South Asians vs. Europeans) with p-values for testing difference in means for continuous variables (two-sample t-test) and independence of categorical variables (Chi-square test). Cox regression models were used to examine both unadjusted and adjusted hazard ratios (HR). Where noted, data were adjusted for age, gender, diabetes, hypertension, smoking status, body mass index (BMI) and use of angiotensin converting enzyme inhibitors (ACEi), angiotensin receptor blockers (ARB), β-blockers (BB), statins and aspirin (ASA).

## RESULTS

Table 1. Cardiovascular Risk Factors

Variable n (%)	South Asian n=199	European n=315	p-value
Age (SD)	62.4y (10.3)	63.6y (10.5)	0.19
Male	154 (77.4)	250 (79.4)	0.59
DM	98 (49.3)	69 (21.9)	<0.001
Treated HT	114 (57.5)	147 (46.6)	0.02
Current smoker	4 (2.0)	40 (12.7)	<0.001
Family Hx CVD	64 (32.2)	124 (39.4)	0.1
Dyslipidemia	179 (90.0)	286 (90.8)	0.75

Table 2. Laboratory and Physical Measures

Variable (SD)	South Asian n=199	European n=315	p-value
Waist Circ (cm)	99.9 (9.8)	104.6 (11.9)	<0.001
BMI (kg/m <sup>2</sup> )	25.8 (3.9)	28.6 (4.7)	<0.001
SBP (mmHg)	137.7 (20.8)	137.4 (19.9)	0.88
DBP (mmHg)	80.2 (10.8)	81.2 (10.6)	0.32
LDL-C (mmol/l)	2.23 (0.80)	2.44 (1.08)	0.01
TG (mmol/l)	1.87 (0.89)	1.83 (1.18)	0.67
HDL-C (mmol/l)	1.18 (0.27)	1.23 (0.34)	0.07

Table 3. Evidence-Based Pharmacotherapy

Variable n (%)	South Asian n=199	European n=315	p-value
ACEi	134 (67.3)	208 (66.2)	0.8
ARB	29 (14.6)	28 (8.9)	0.05
Beta Blocker	126 (63.3)	198 (63.1)	0.95
Statins	171 (85.9)	273 (86.9)	0.74
Antiplatelets	177 (88.9)	262 (83.4)	0.08

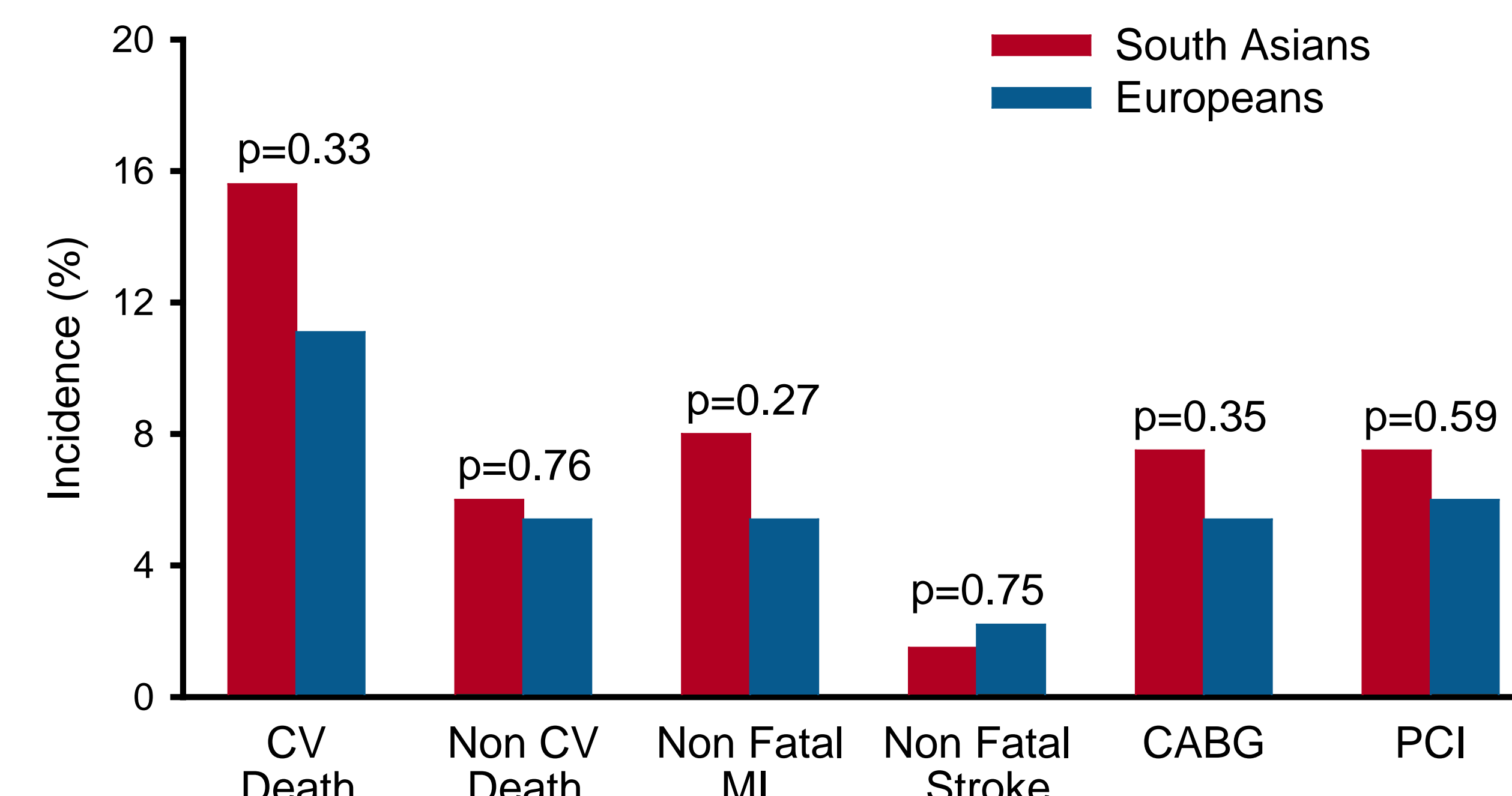


Fig. 1. 5-Year Cardiovascular Outcomes (Unadjusted HR)

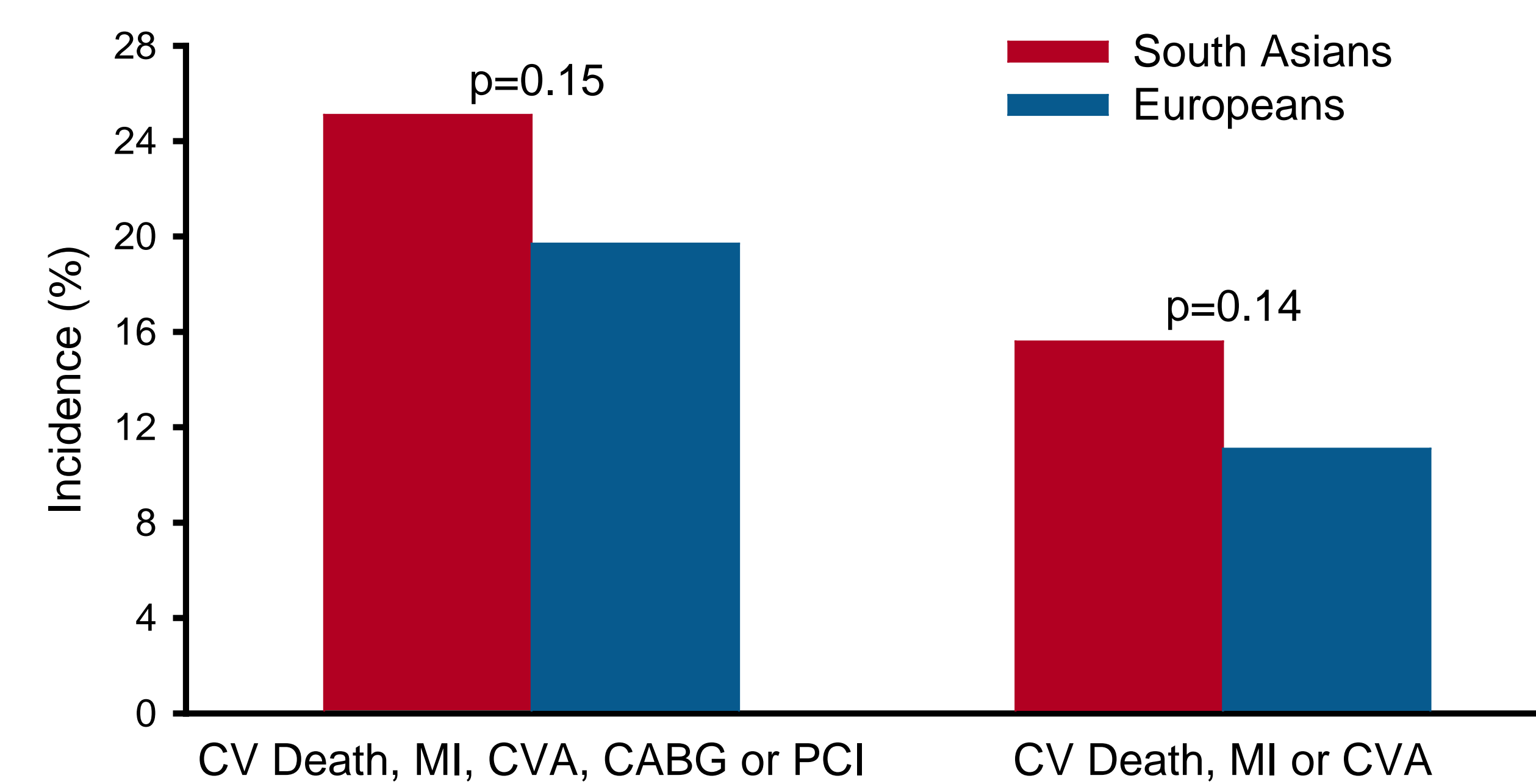


Fig. 2. 5-Year Composite Cardiovascular Outcomes (%) (Unadjusted HR)

Hazard Ratio for Primary Composite Outcome

- Primary outcome was a composite of CV death, non-fatal MI, non-fatal stroke, CABG or PCI
- Unadjusted crude HR (SA vs. EU) = 1.31 (0.90-1.92), p=0.16
- Cox regression model adjusted for age, gender, DM, HT, smoking status, BMI, and use of ACEi, ARB, BB, statins and ASA
- Adjusted HR (SA vs. EU) = 1.15 (0.73-1.81), p=0.56

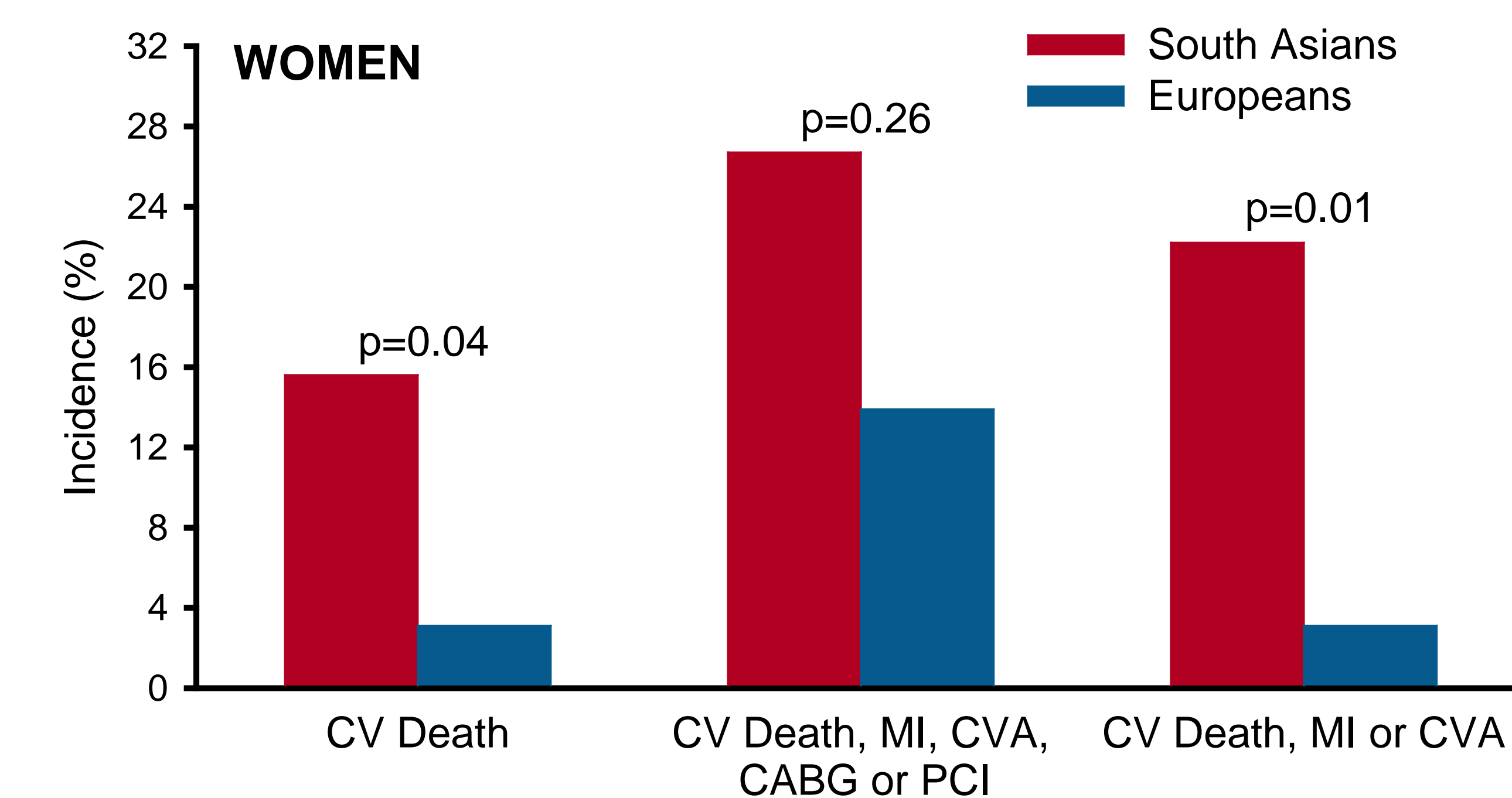
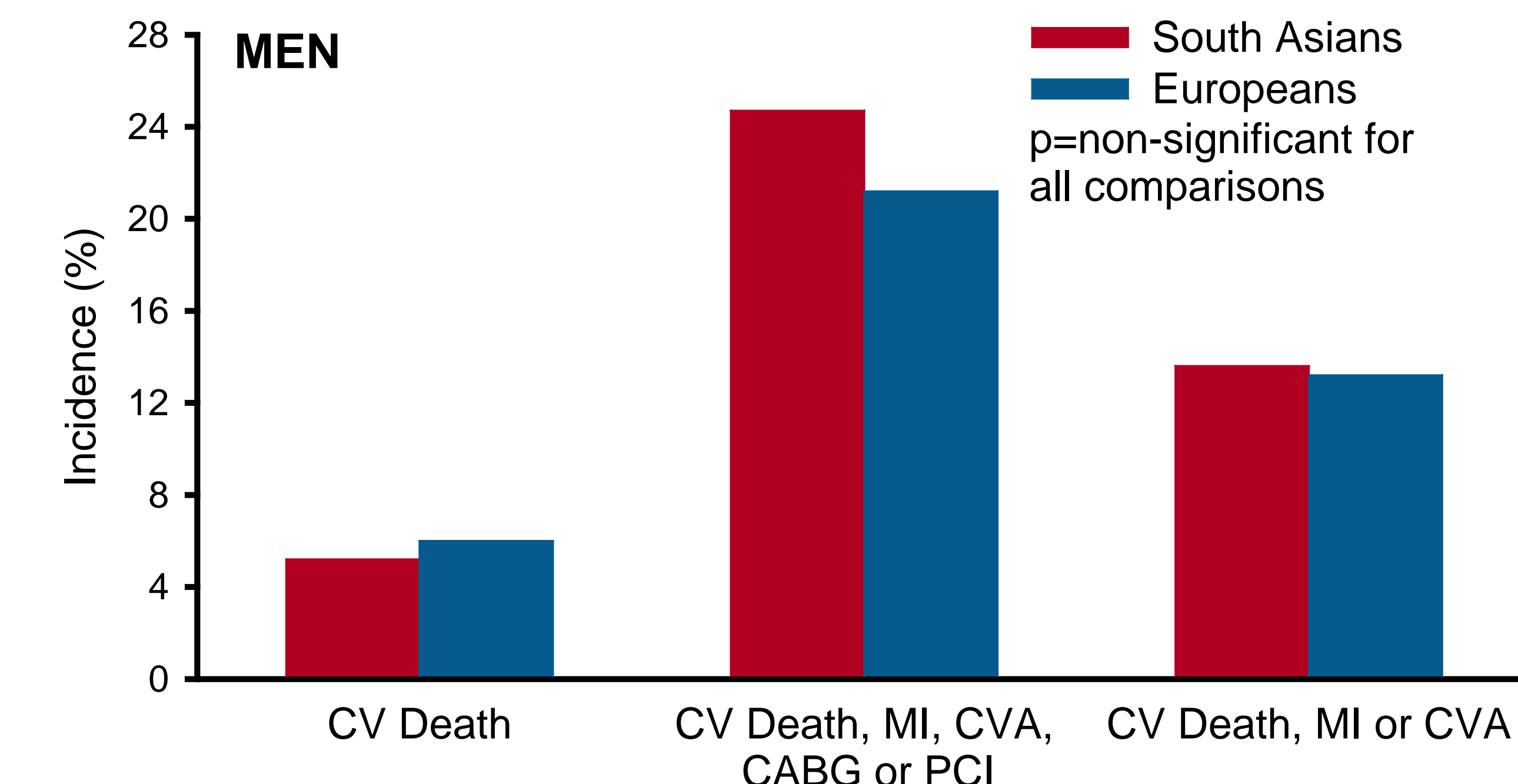


Fig. 3. Exploratory Analysis by Gender (Adjusted HR)

## CONCLUSIONS

In the PRACTICE Registry, a pilot analysis of CV outcomes:

- South Asian and European Canadians with CAD have differing risk factor profiles, with South Asians having a higher prevalence of diabetes and hypertension, lower BMI, and a lower prevalence of smoking
- Evidence-based therapies are applied equally in both groups
- Composite and individual CV outcomes are similar between groups at 5 year follow-up, although almost all outcomes are numerically higher in South Asians
- South Asian women appear to be at higher risk for CV death, and the composite of CV death, MI or stroke, when compared to European women
- Whether or not CV outcomes actually differ in prospective follow-up between South Asian and European Canadians warrants further analysis with a larger sample size

## CONFLICTS OF INTEREST

The authors report no conflicts of interest to disclose.

## ACKNOWLEDGEMENTS

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