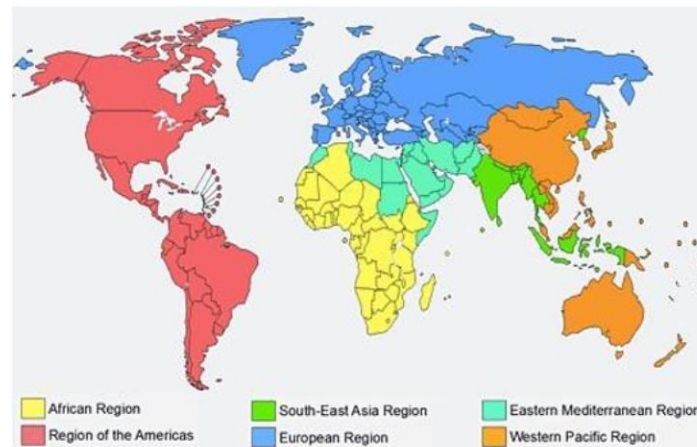


# INTERASPIRE

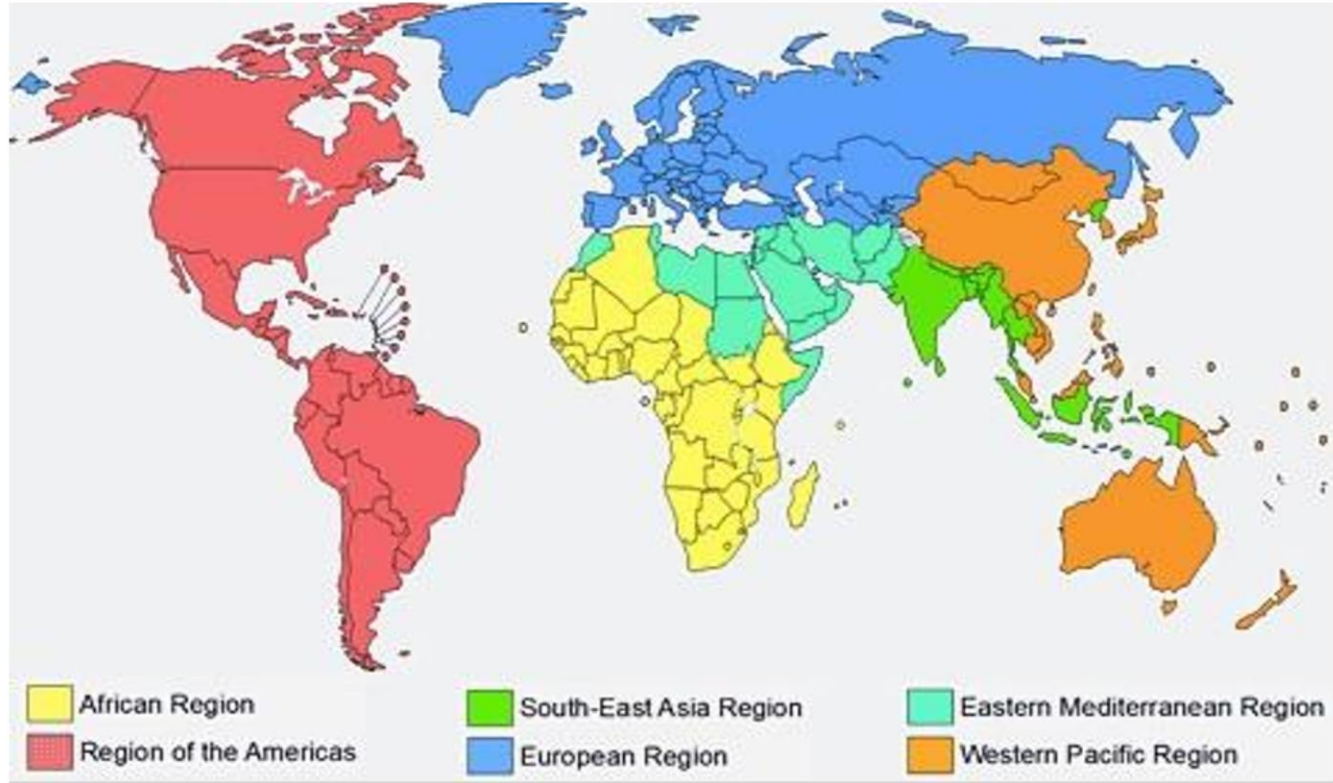
An international survey of secondary prevention  
of cardiovascular disease across 6 WHO regions



- Adults with prior coronary heart disease are at high risk for future cardiovascular events
- To minimise this risk, guidelines recommend evidence-based lifestyle and pharmacologic treatment of modifiable cardiovascular risk factors (secondary prevention)
- Studies, e.g. EUROASPIRE surveys, show poor implementation of these guidelines in Europe
- Less is known on the implementation of secondary prevention at a **global level**



## 14 countries/6 WHO regions, 2019 – 2023



Malaysia



Argentina



Indonesia



Philippines



UAE



Portugal



Tanzania



Kenya



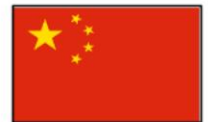
Nigeria



Colombia



Singapore



China



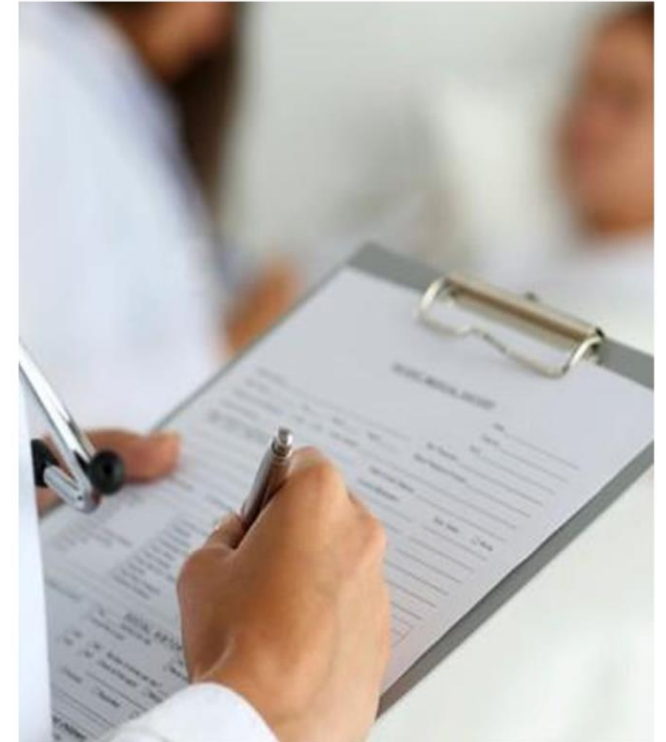
Egypt



Poland

- Consecutive males and females <80 years with first or recurrent diagnosis of coronary heart disease
- At least 3 regions per country\*, up to 6 centres, aiming at 400 participants/country
- All sites trained by National Institute for Prevention and Cardiovascular Health
- Standardized patient interview and examination
- Blood analysed for lipids, creatinine, and eGFR by core lab (Helsinki - Drs Erlund and Vihervaara)
- Data managed by ESC- European Observational Research Program (EORP) & ARO (Liverpool, UK) and analysed at Ghent University (Belgium - Prof Dr De Bacquer)

*\*UAE and Tanzania 2 regions*



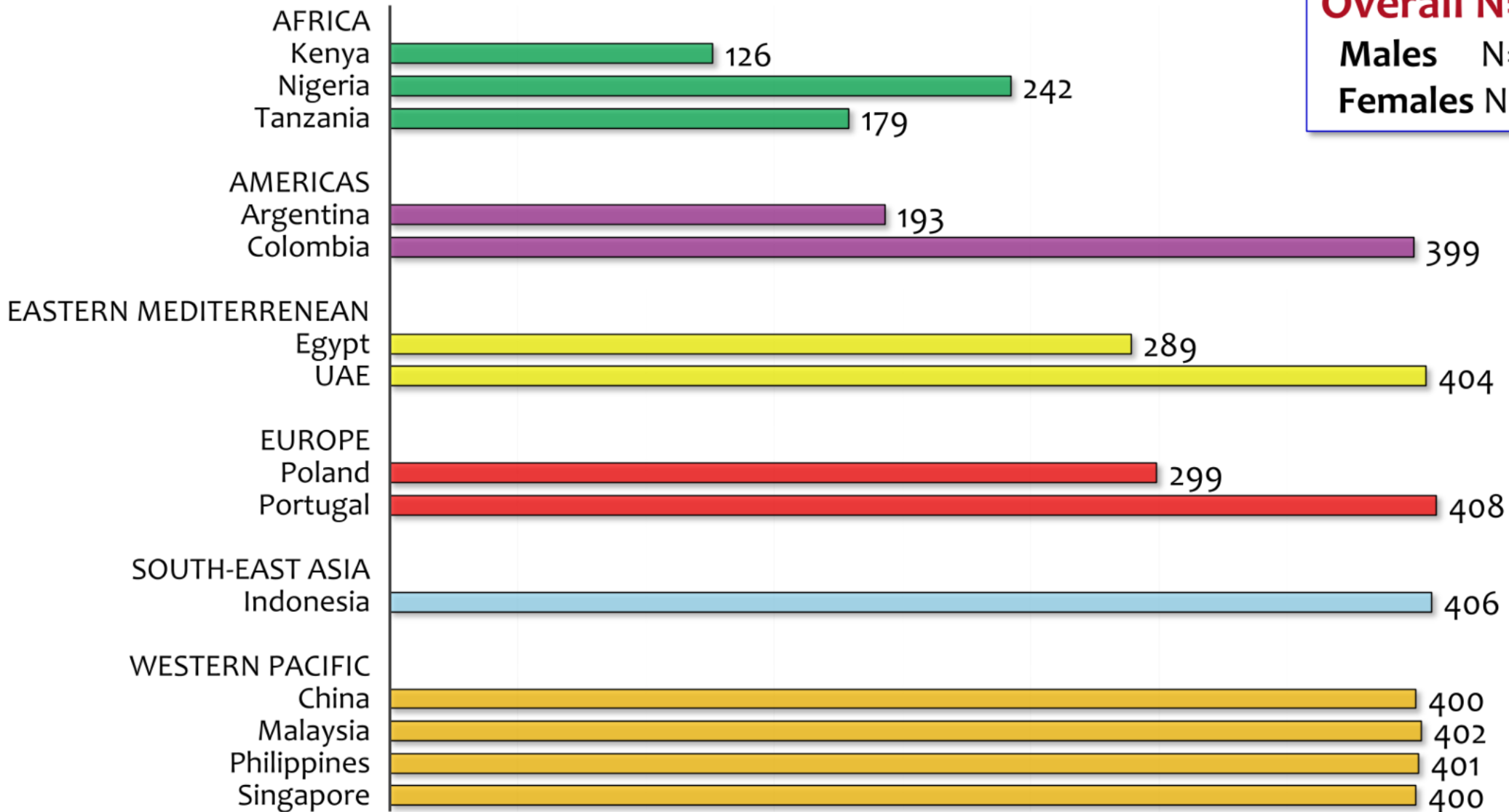


- All prevalences are **standardized** for age and sex (according to direct method)
- **Precision** → overall & sex-specific estimates shown with 95% confidence intervals
- **Clustering** of patients within countries are accounted for (meta-analytic approach)  
→ wider confidence intervals
- **Biochemical analyses:** Central laboratory THL, Helsinki  
*China, Indonesia, UAE, Egypt:* Local laboratories  
→ Lab standardization (conversion formulas)

We were unable to validate Egyptian lab data and for that reason laboratory data from Egypt have been excluded from the results

# Number of participants

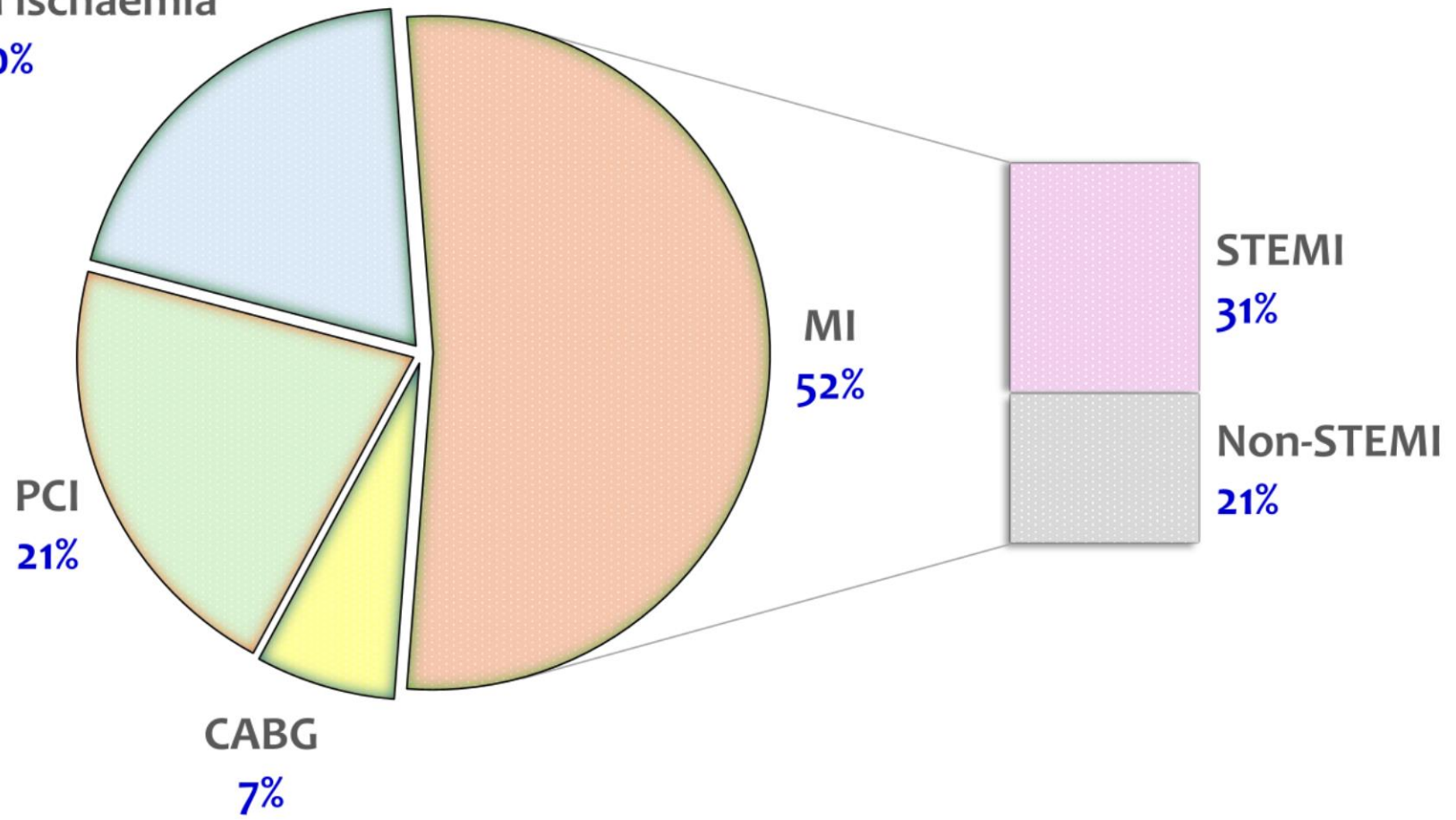
**Overall N=4,548**  
**Males N=3,587**  
**Females N=961 (21.1%)**



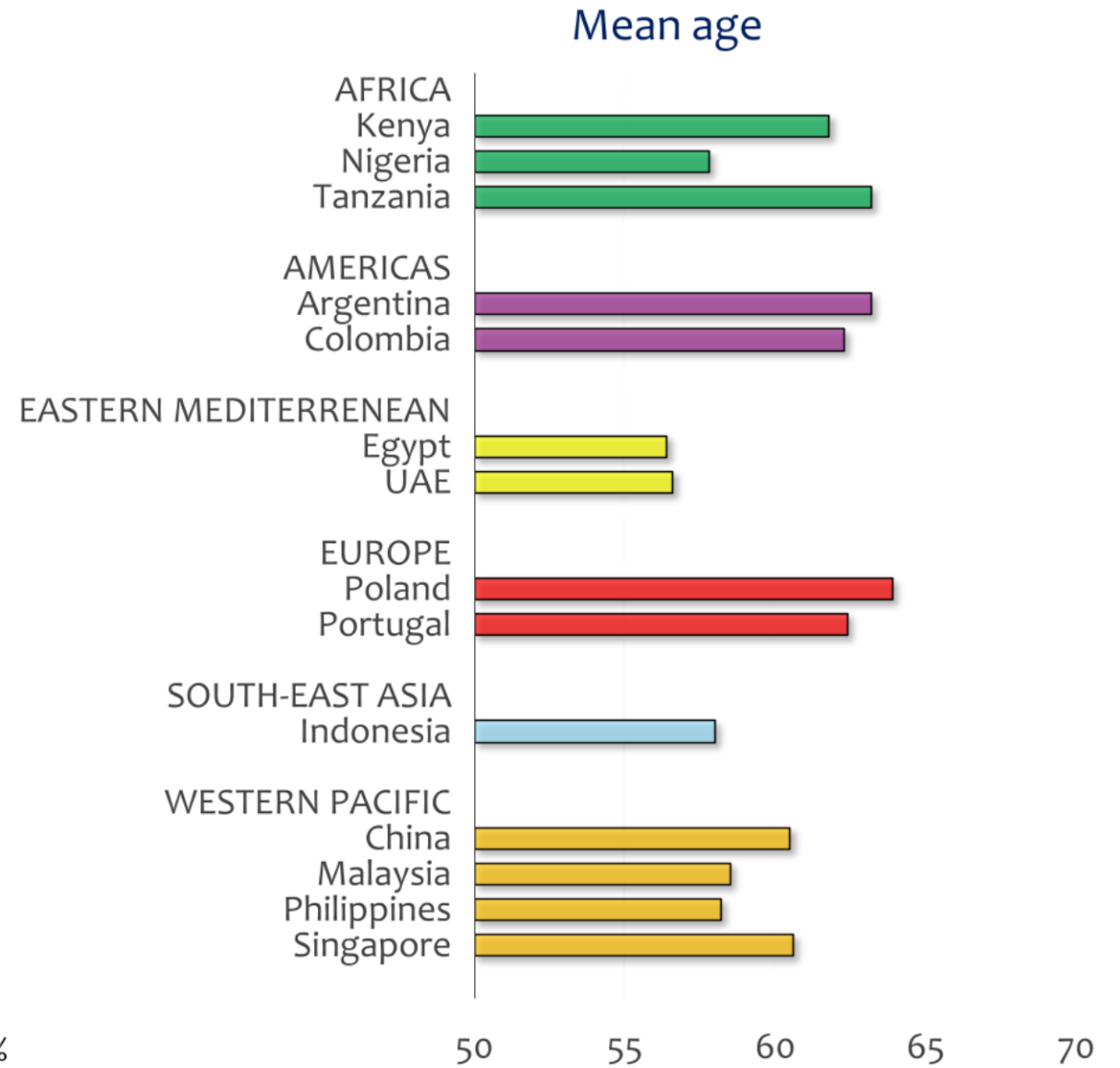
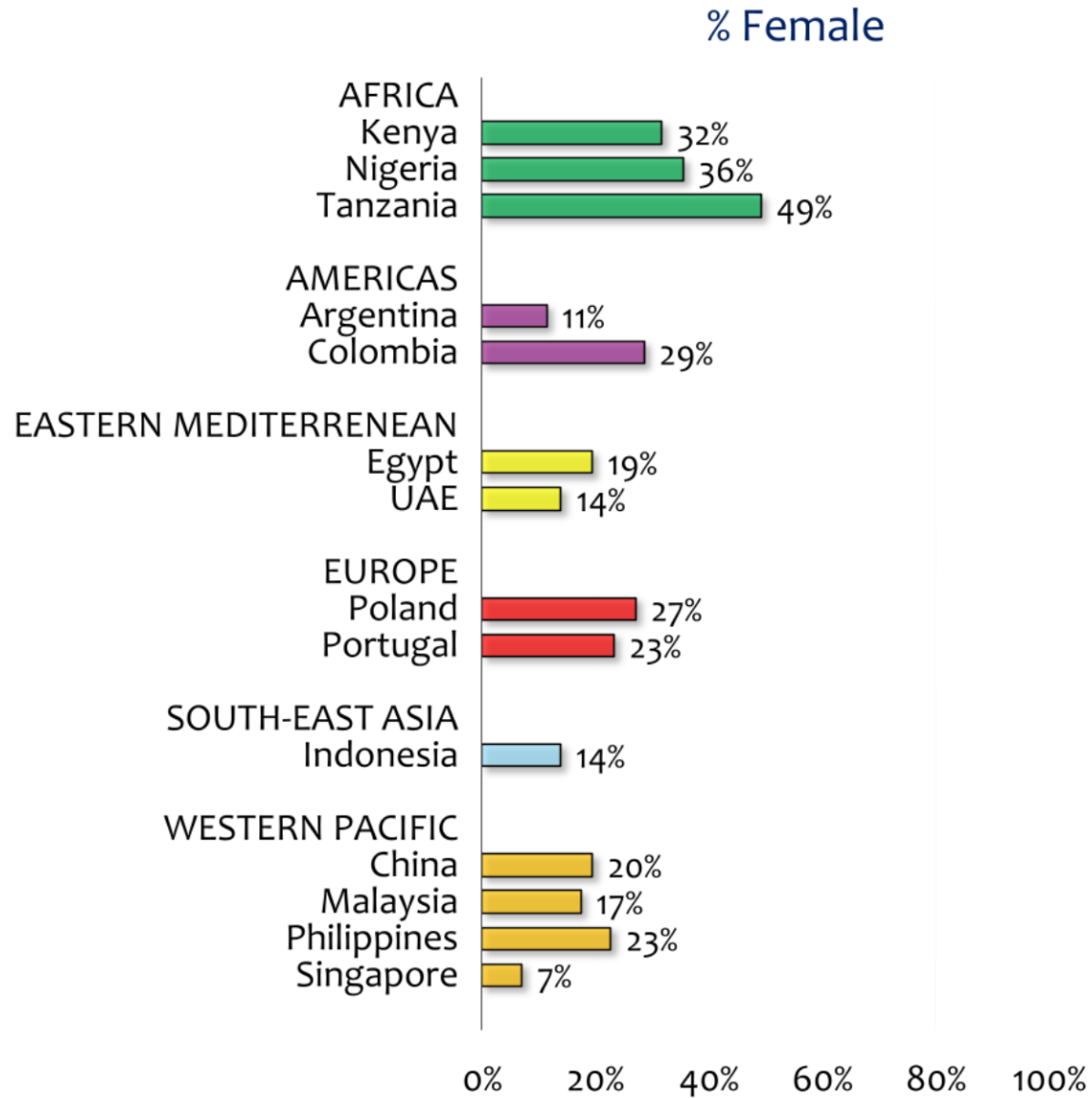


Unstable angina / acute myocardial ischaemia

20%



# Distribution of sex and age at interview

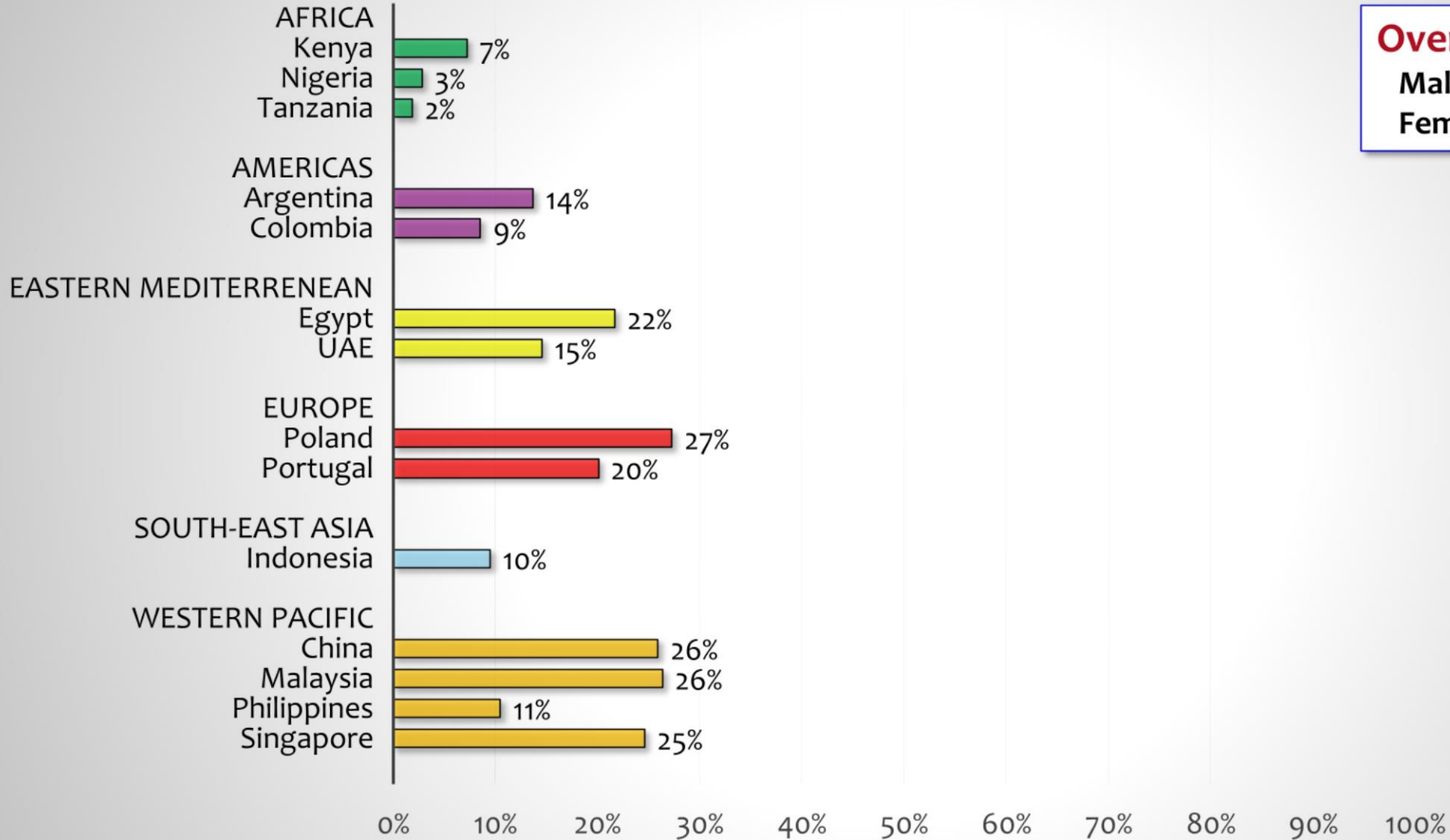


→ All prevalences standardized for age and sex



# Results - Lifestyle



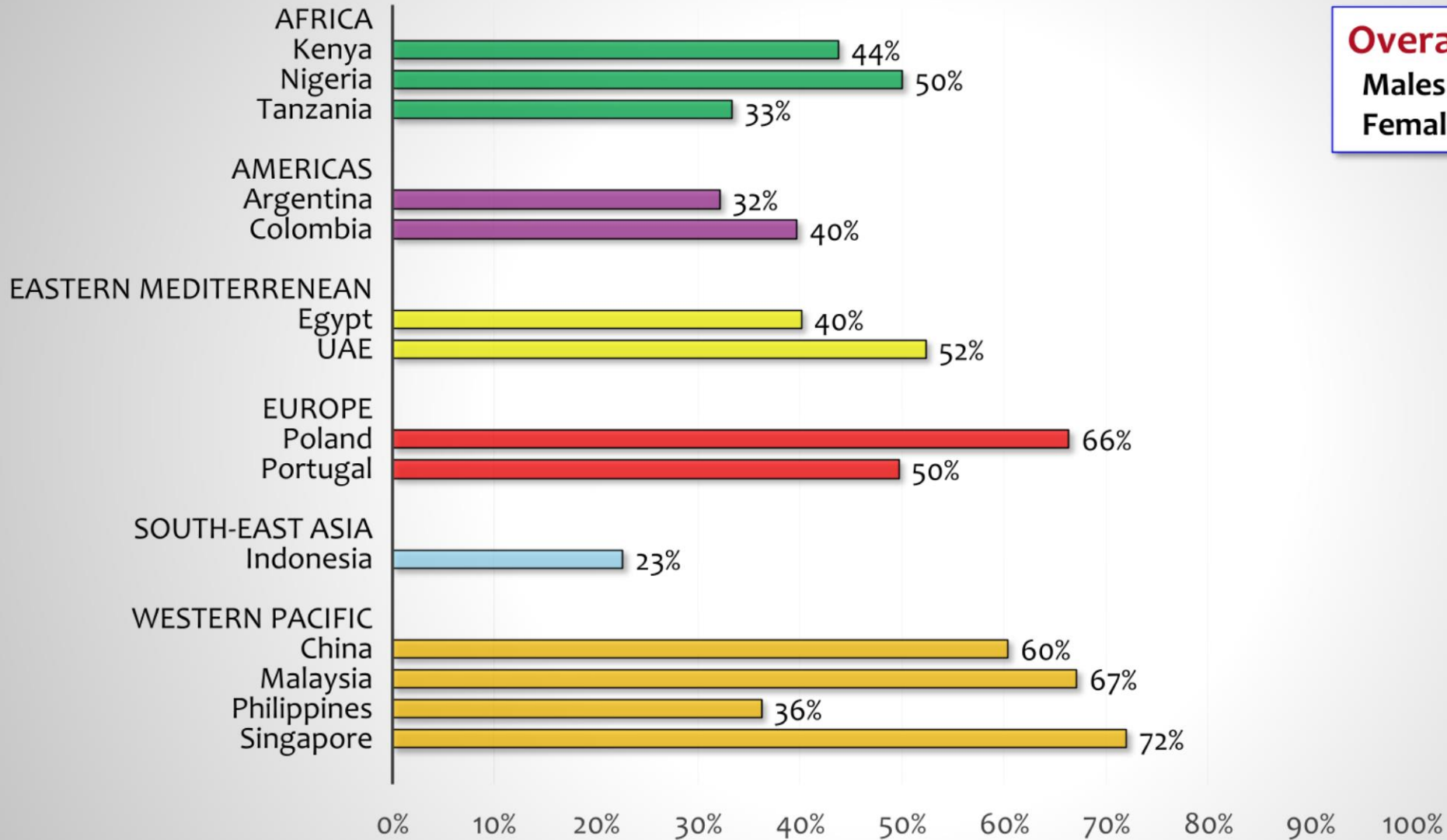


**Overall 12.6% (7.8-19.6)**

**Males 16.1% (10.1-24.5)**

**Females 7.1% (4.5-10.9)**

\*Self-reported smoking and/or CO in breath > 10 ppm

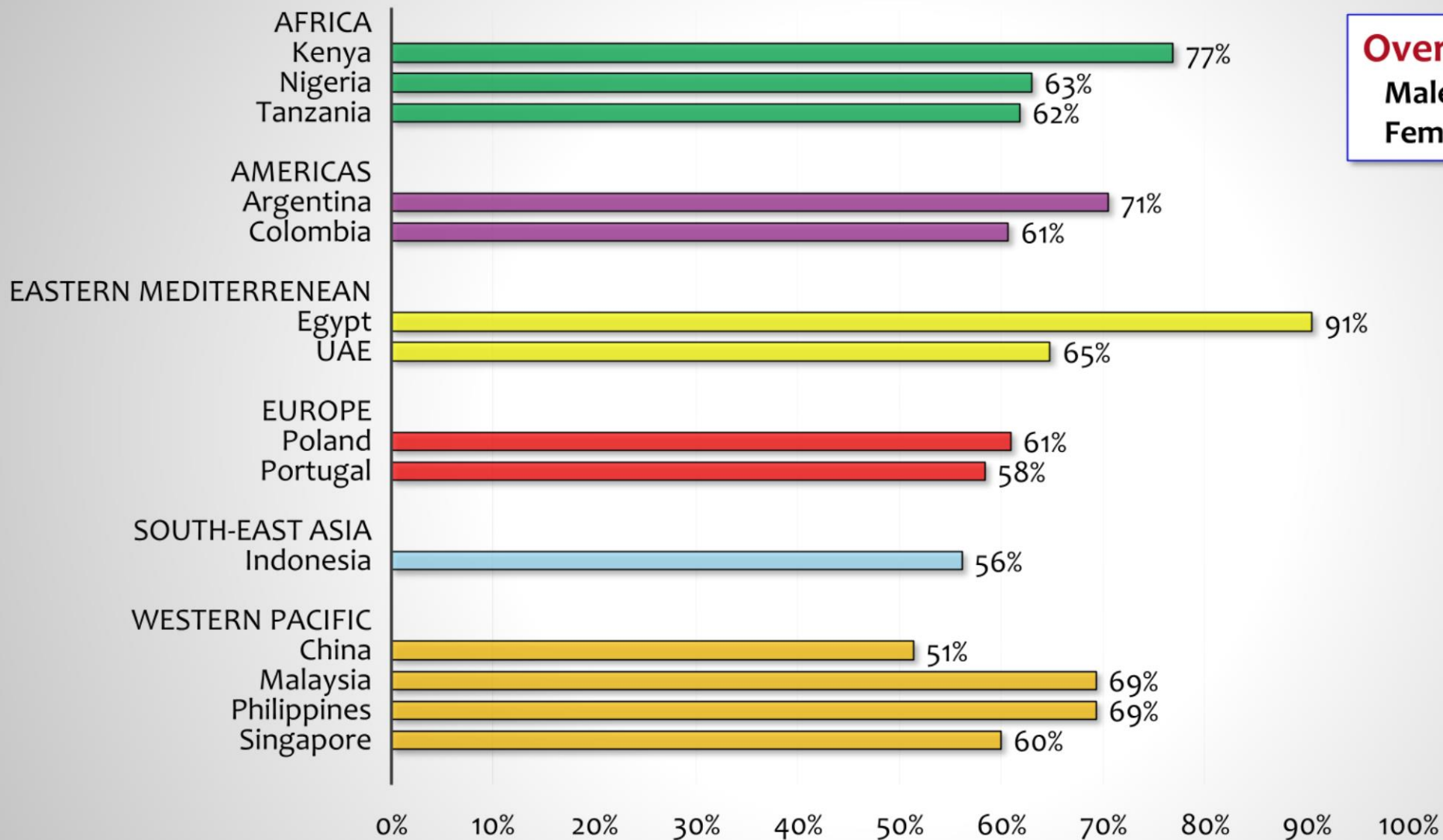


**Overall 48.4% (39.0-58.0)**  
**Males 50.7% (40.7-60.6)**  
**Females 42.5% (31.3-54.5)**

\*Smoking in those reporting to be smoker in month prior to the recruiting event



# Physical Inactivity\*



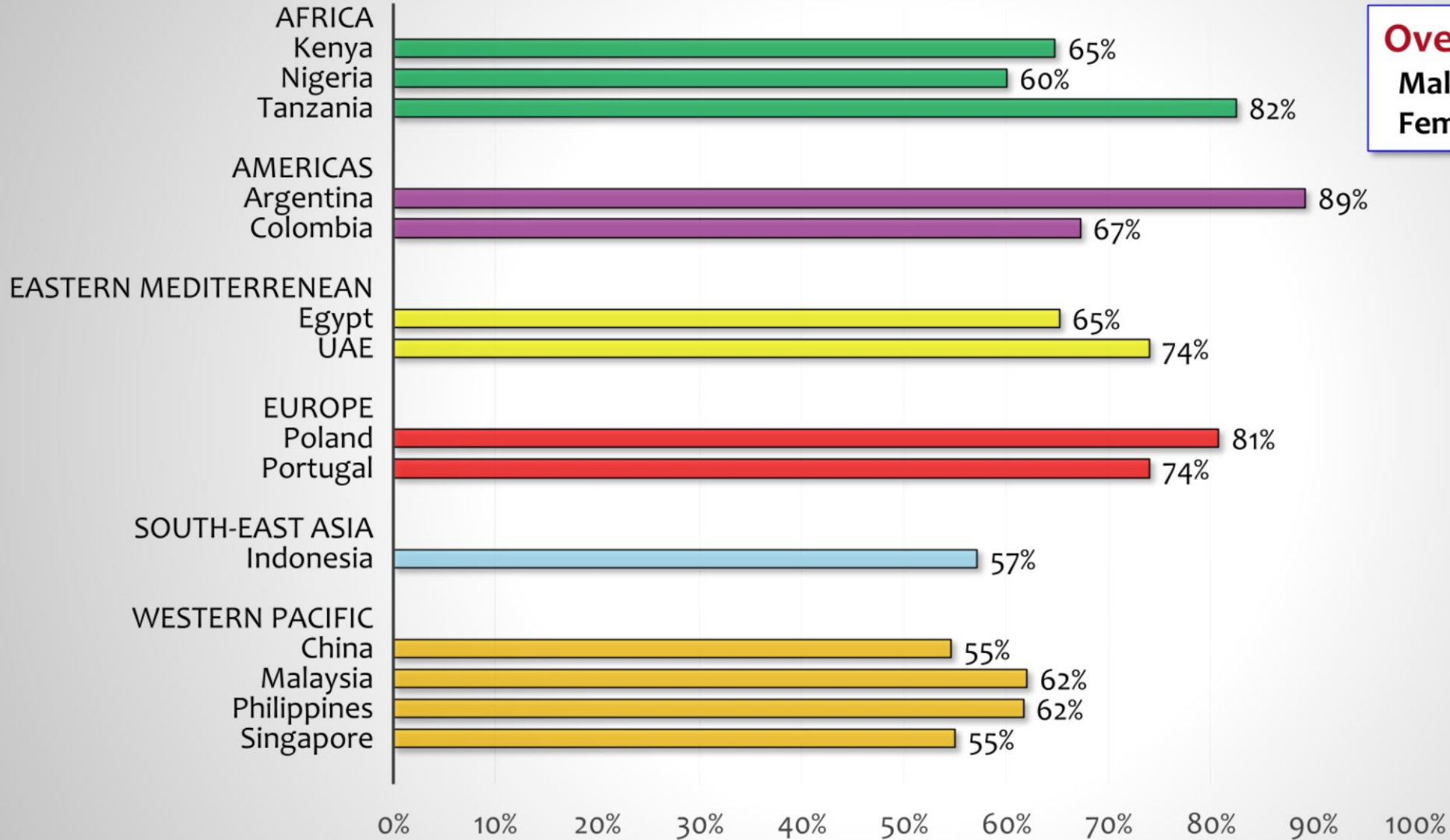
**Overall 66.5% (59.6-72.7)**

**Males 65.3% (58.5-71.5)**

**Females 68.6% (60.4-75.8)**

\*Not performing regular physical activity  $\geq 30$  minutes on average 5 times a week

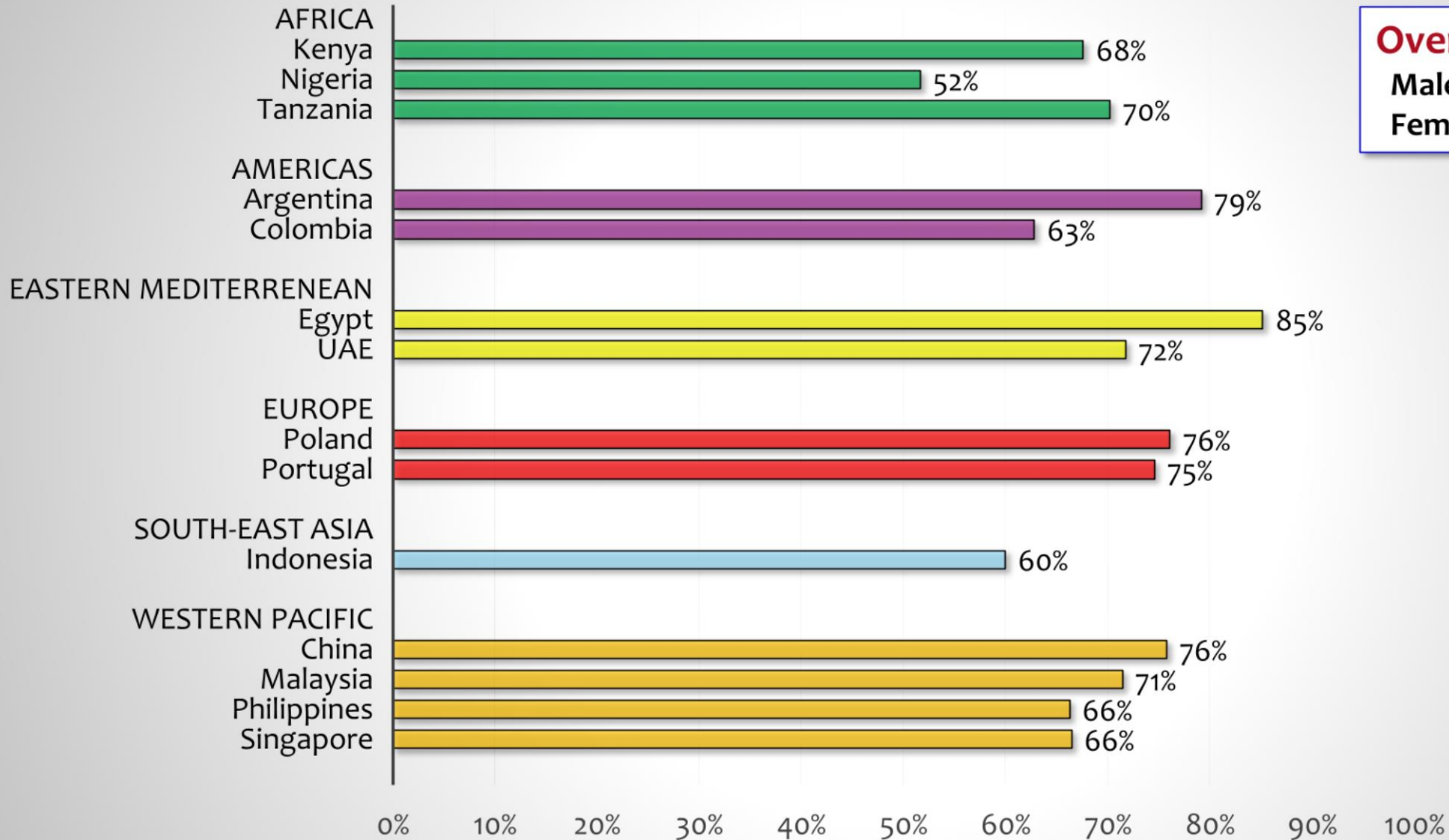
# Body mass index $\geq 25$ kg/m<sup>2</sup>



**Overall 69.7% (63.0-75.7)**  
**Males 71.6% (65.9-76.6)**  
**Females 64.7% (55.2-73.2)**



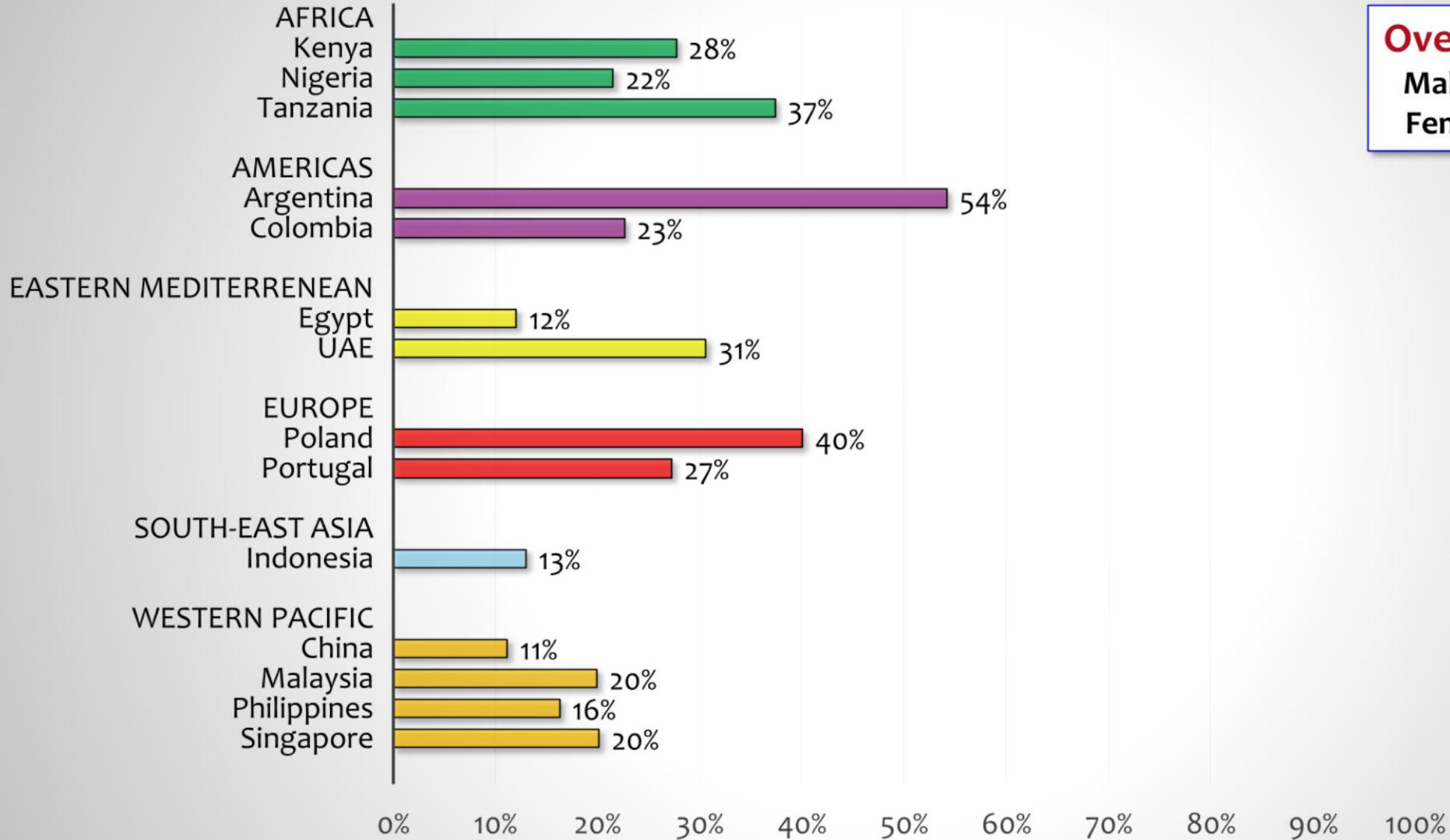
# Central overweight\*



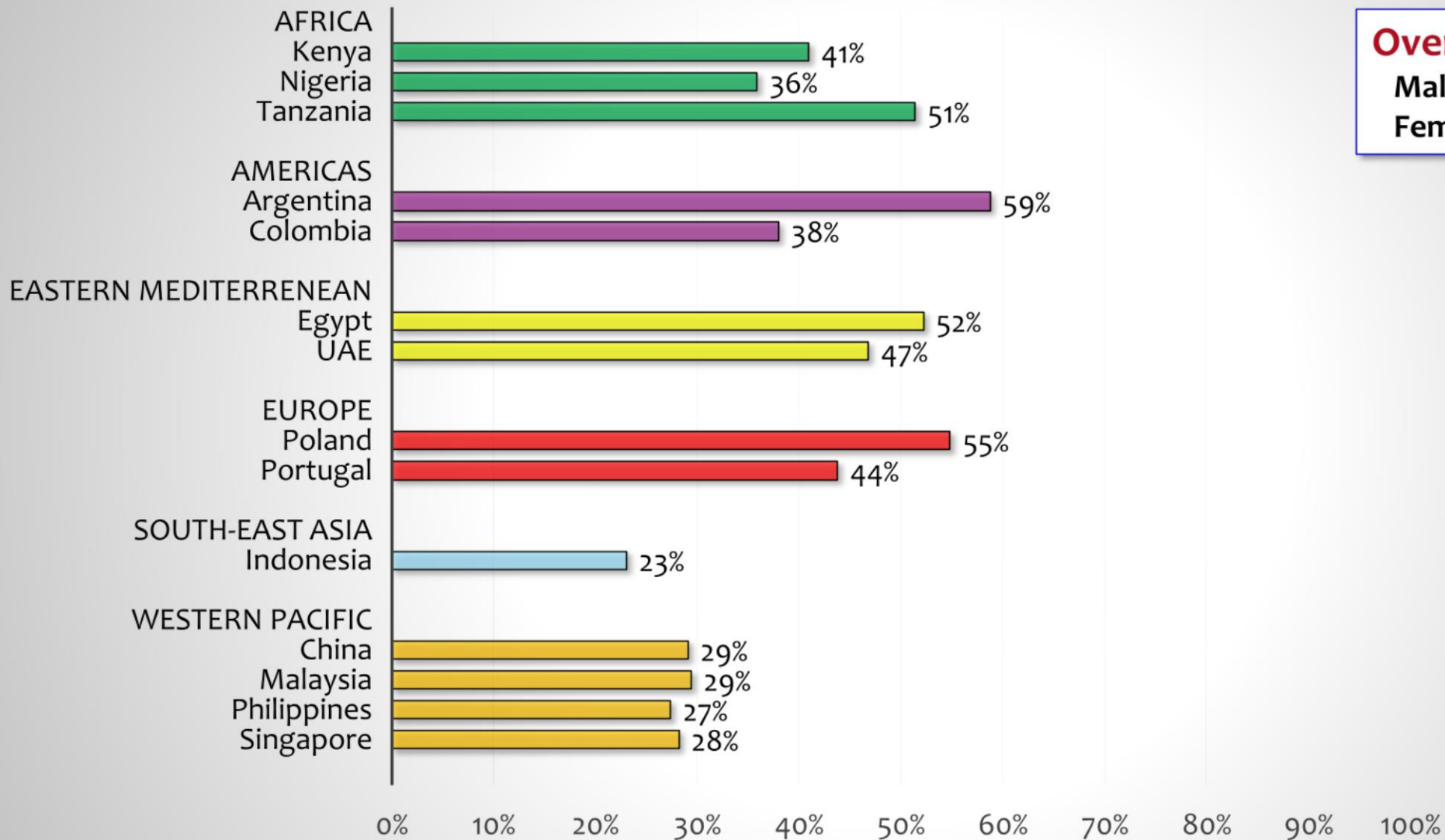
**Overall 71.9% (67.3-76.1)**  
**Males 71.5% (66.5-76.1)**  
**Females 72.5% (67.0-77.4)**

\*Waist circumference  $\geq 80/94$  cm for women/men (South Asian and Chinese men  $\geq 90$  cm)

# Body mass index $\geq 30$ kg/m<sup>2</sup>



**Overall 24.6% (18.3-32.1)**  
**Males 26.7% (20.6-33.9)**  
**Females 18.9% (12.0-28.4)**



**Overall 40.7% (33.1-48.9)**  
**Males 40.0% (32.8-47.7)**  
**Females 41.2% (32.2-50.9)**

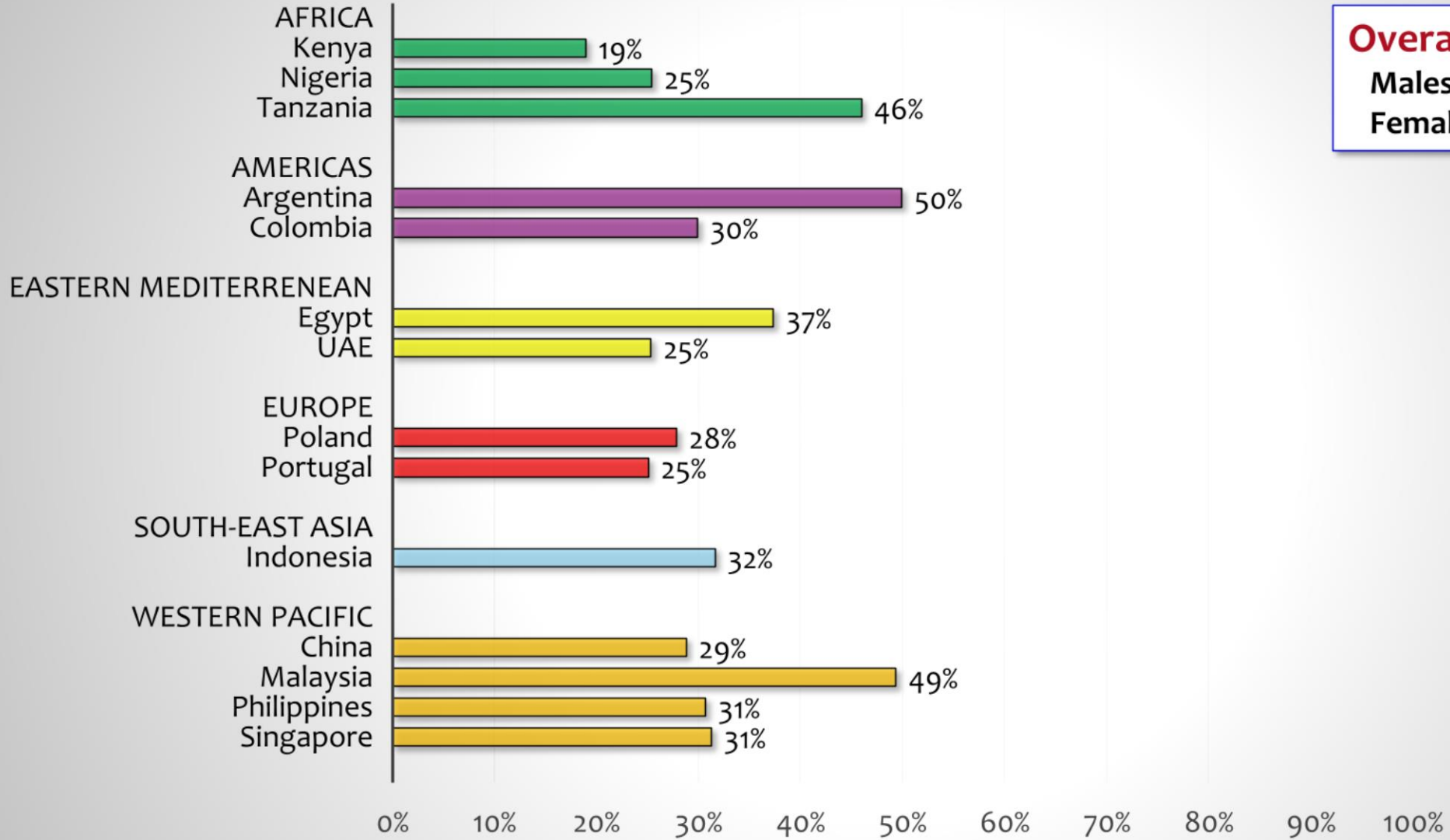
\*Waist circumference  $\geq 88/102$  cm for women/men



# Results – Medical risk factors



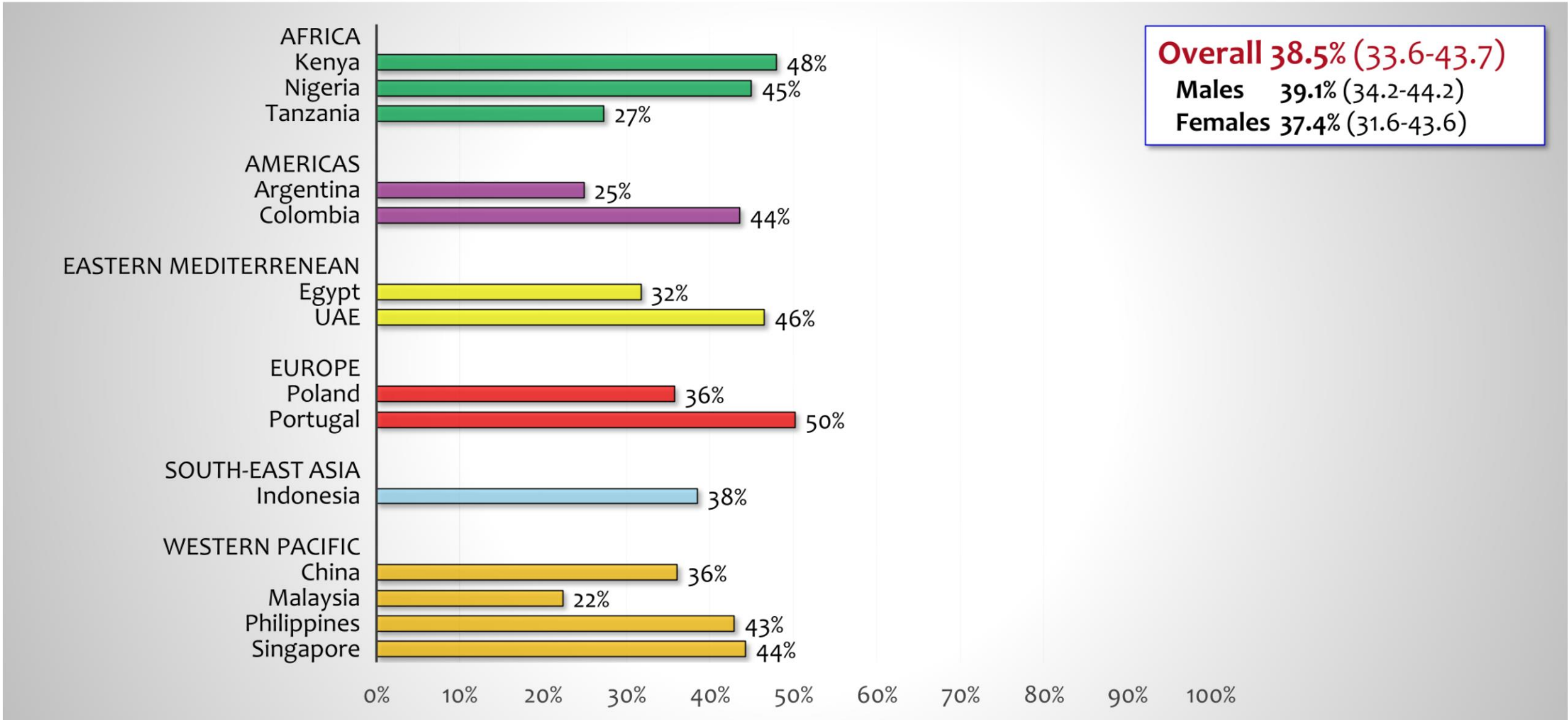
# Systolic/diastolic BP $\geq$ 140/90 mmHg



**Overall 32.4% (27.2-38.1)**  
**Males 29.9% (24.9-35.4)**  
**Females 36.9% (30.6-43.6)**

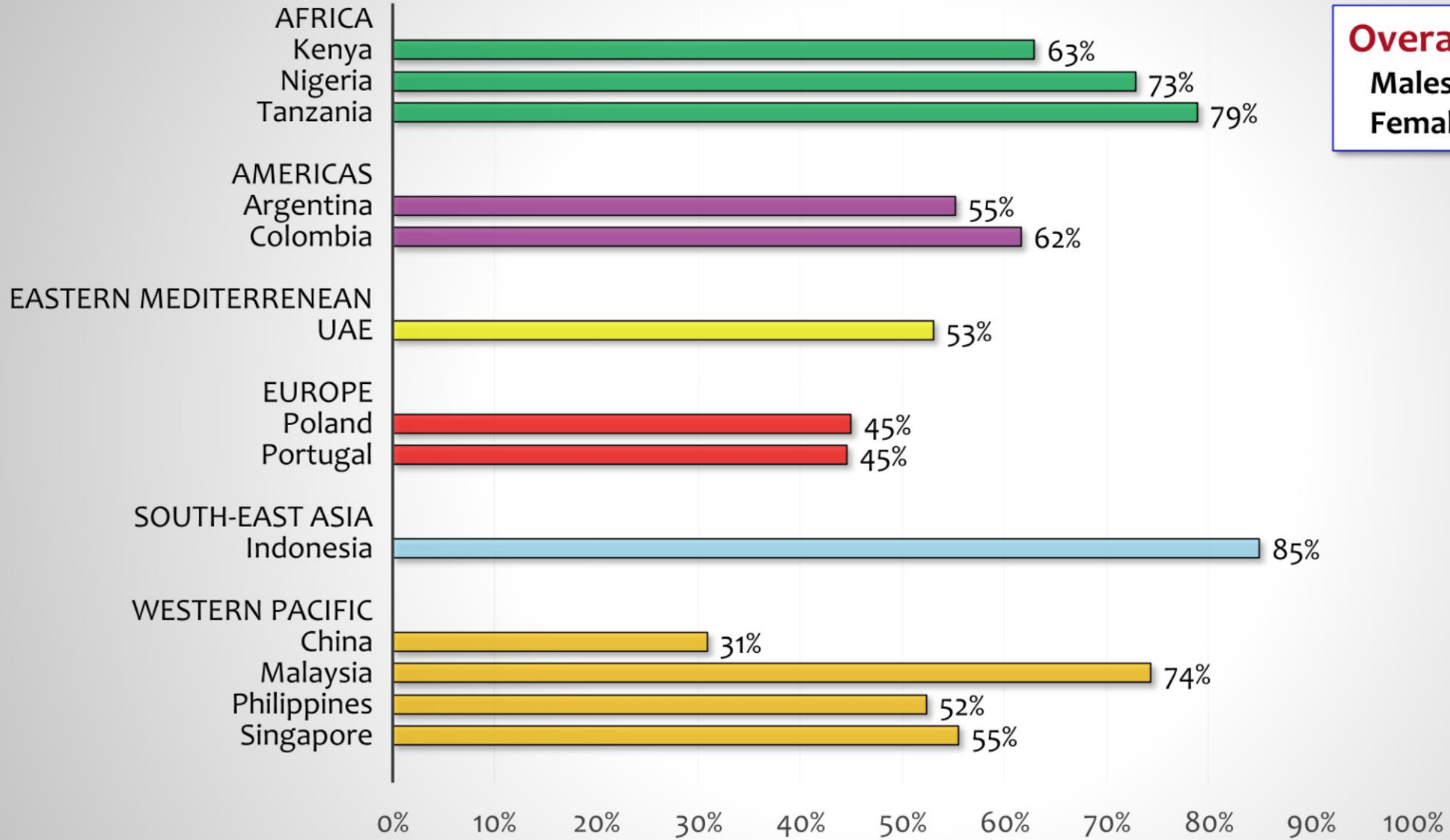
# Systolic/diastolic BP < 130/80 mmHg

In patients using blood pressure lowering drugs\*



\*Beta-blockers, RAAS, renin inhibitors, calcium channel blockers, diuretics or other anti-hypertensive drugs

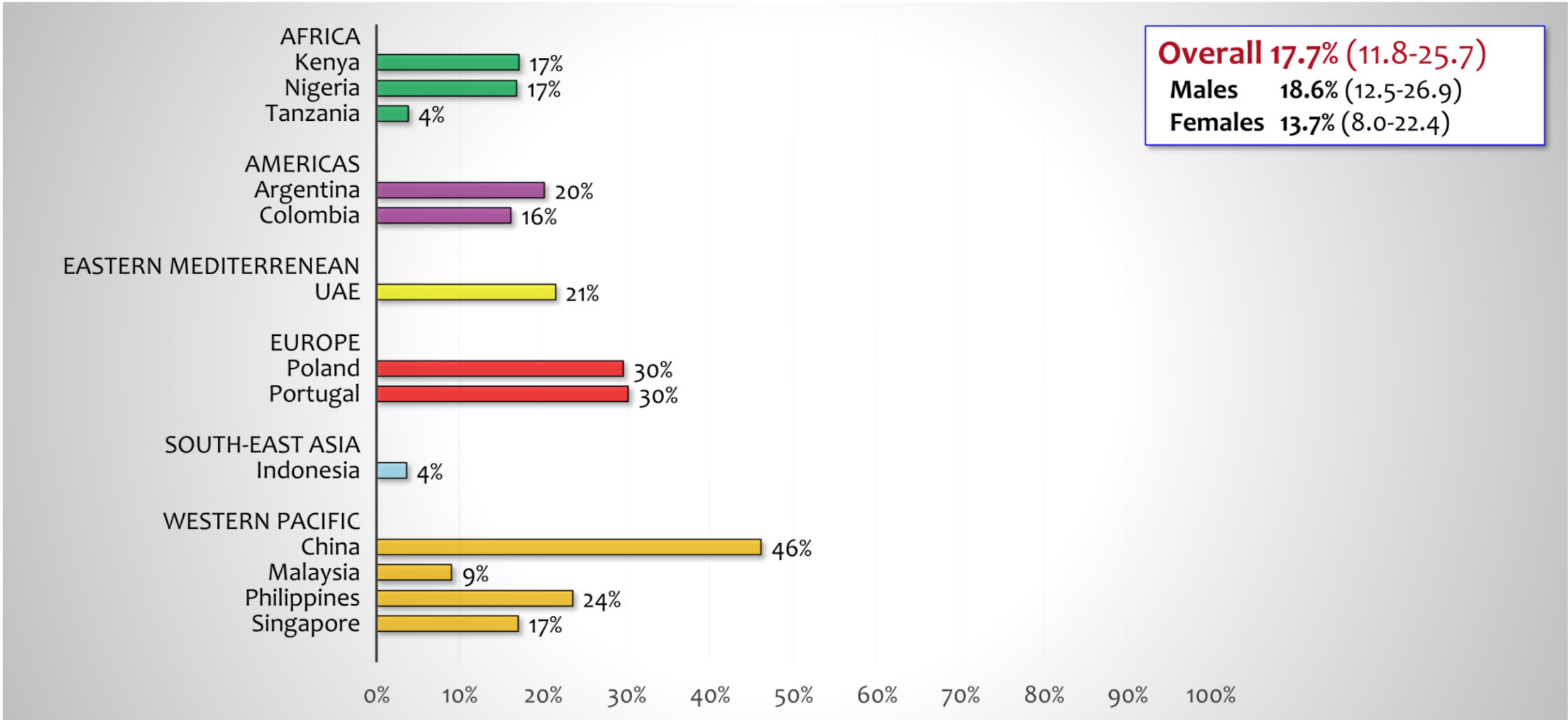
# LDL cholesterol $\geq 1.8$ mmol/L



**Overall 60.5% (50.5-69.7)**  
**Males 58.3% (48.9-67.1)**  
**Females 67.6% (55.8-77.5)**

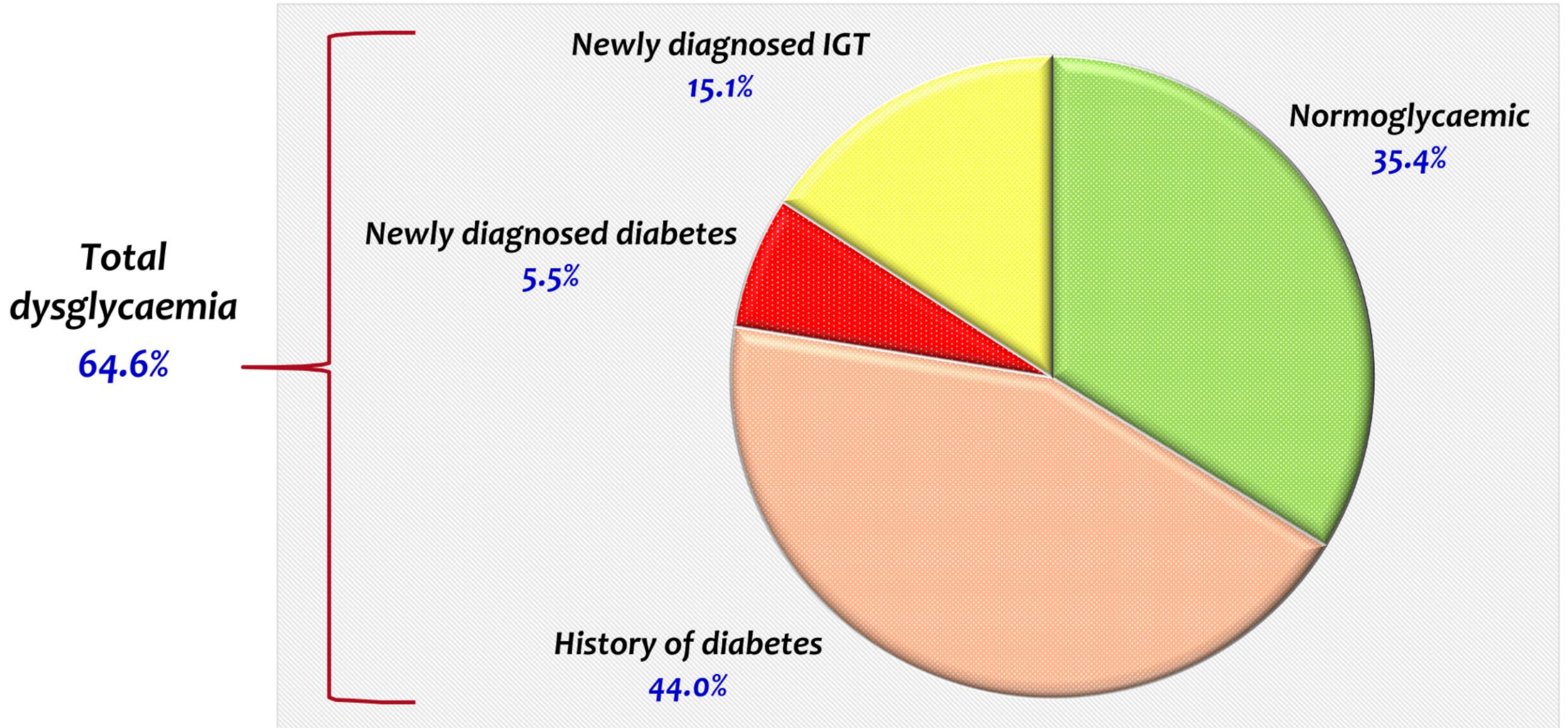
# LDL cholesterol < 1.4 mmol/L

In patients using lipid-lowering drugs



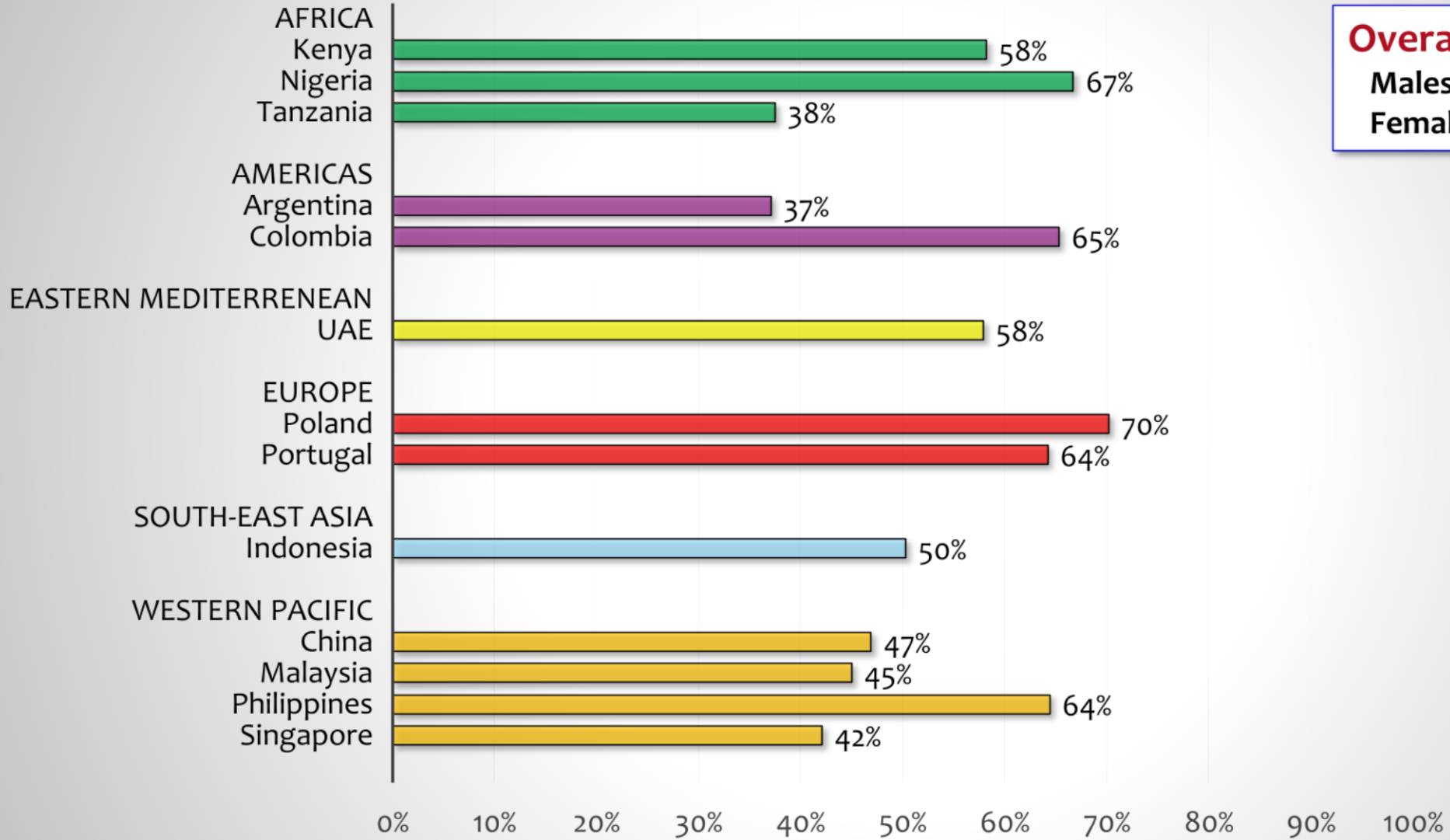
\*Beta-blockers, RAAS, renin inhibitors, calcium channel blockers, diuretics or other anti-hypertensive drugs

# Glycaemic state based on OGTT

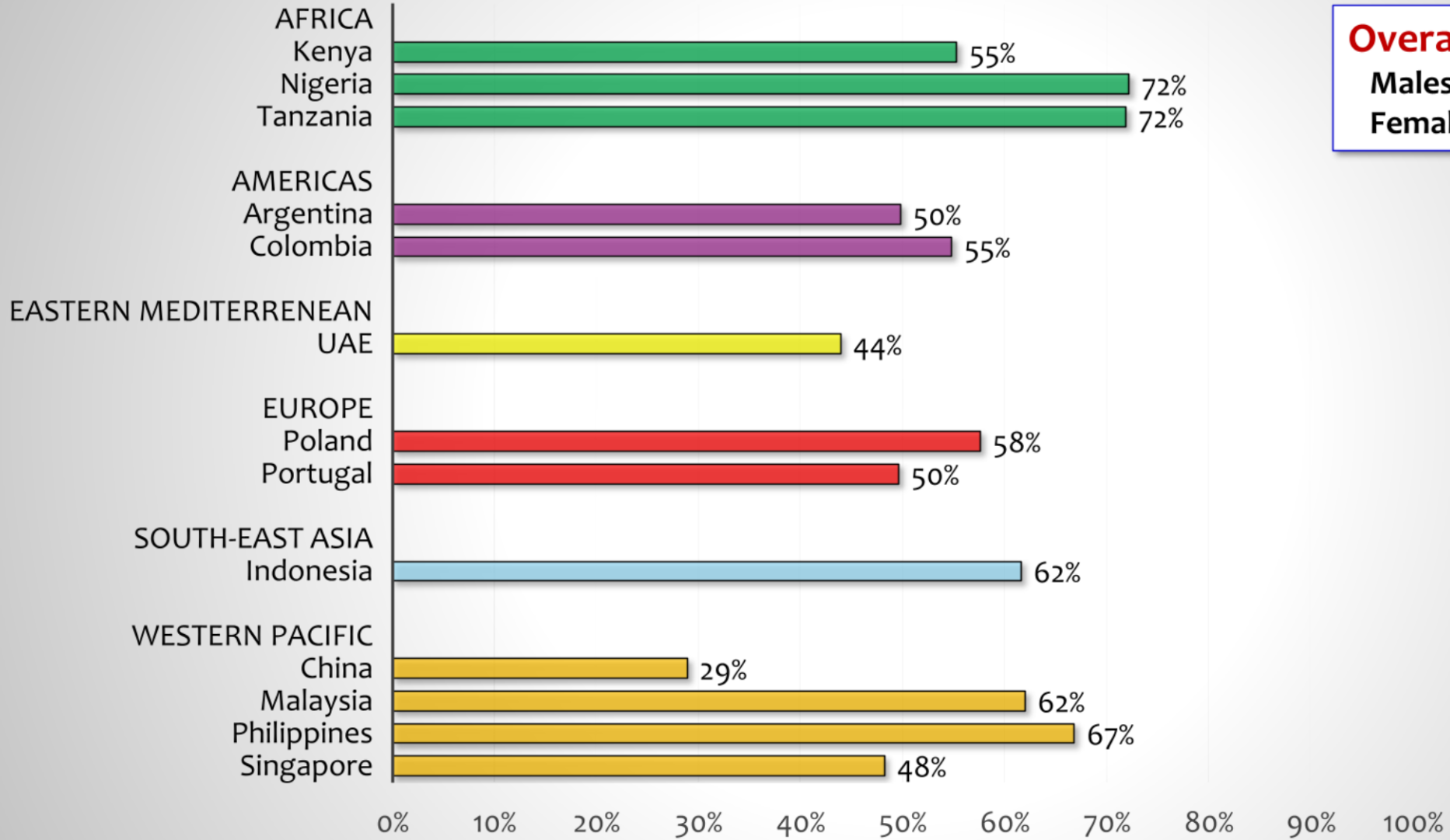


# Achievement of HbA1c target

In patients with self-reported diabetes, % < 7.0% (<53 mmol/mol)

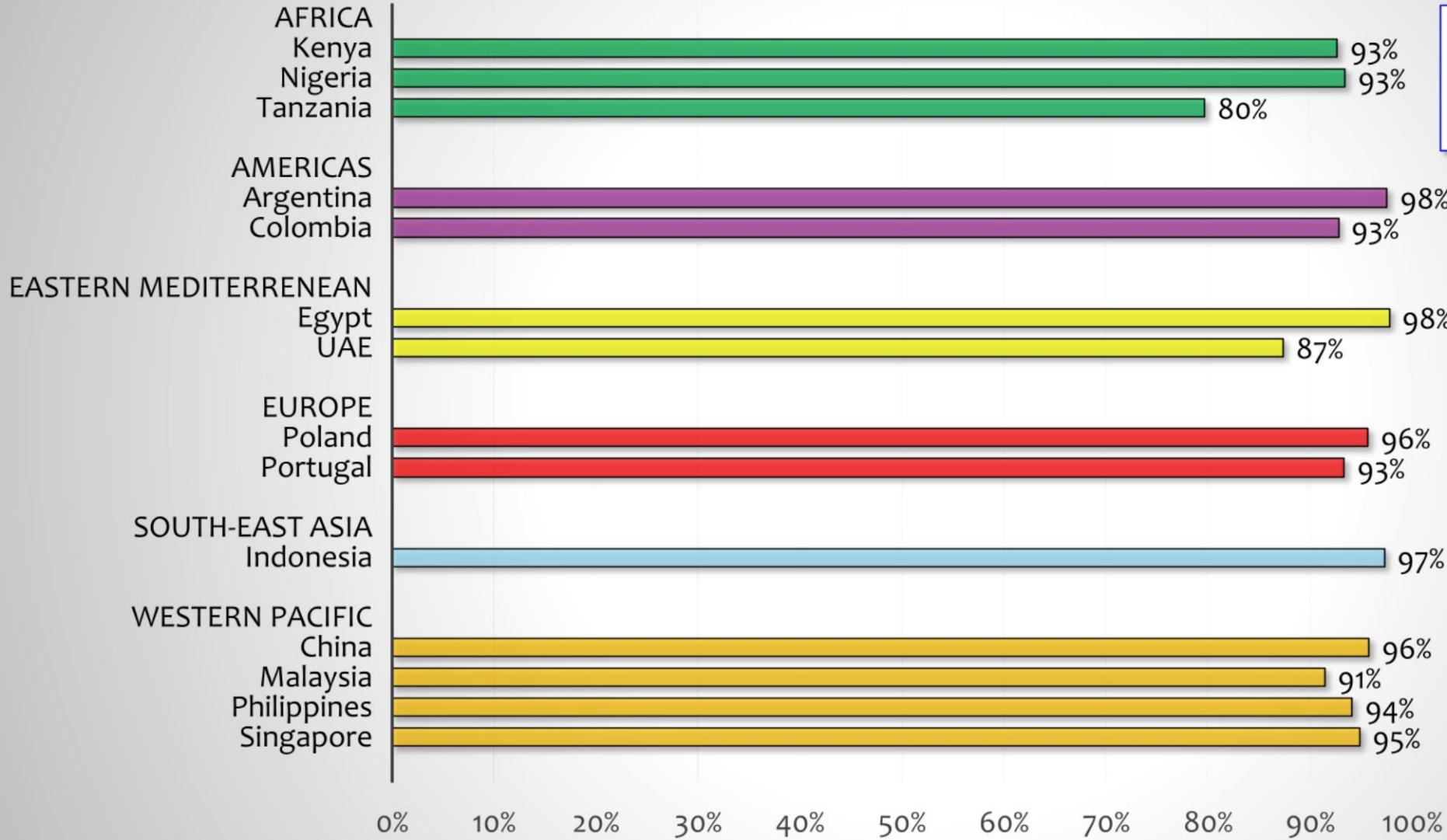


**Overall 55.2% (48.8-61.3)**  
**Males 57.5% (50.9-63.9)**  
**Females 47.7% (39.1-56.5)**

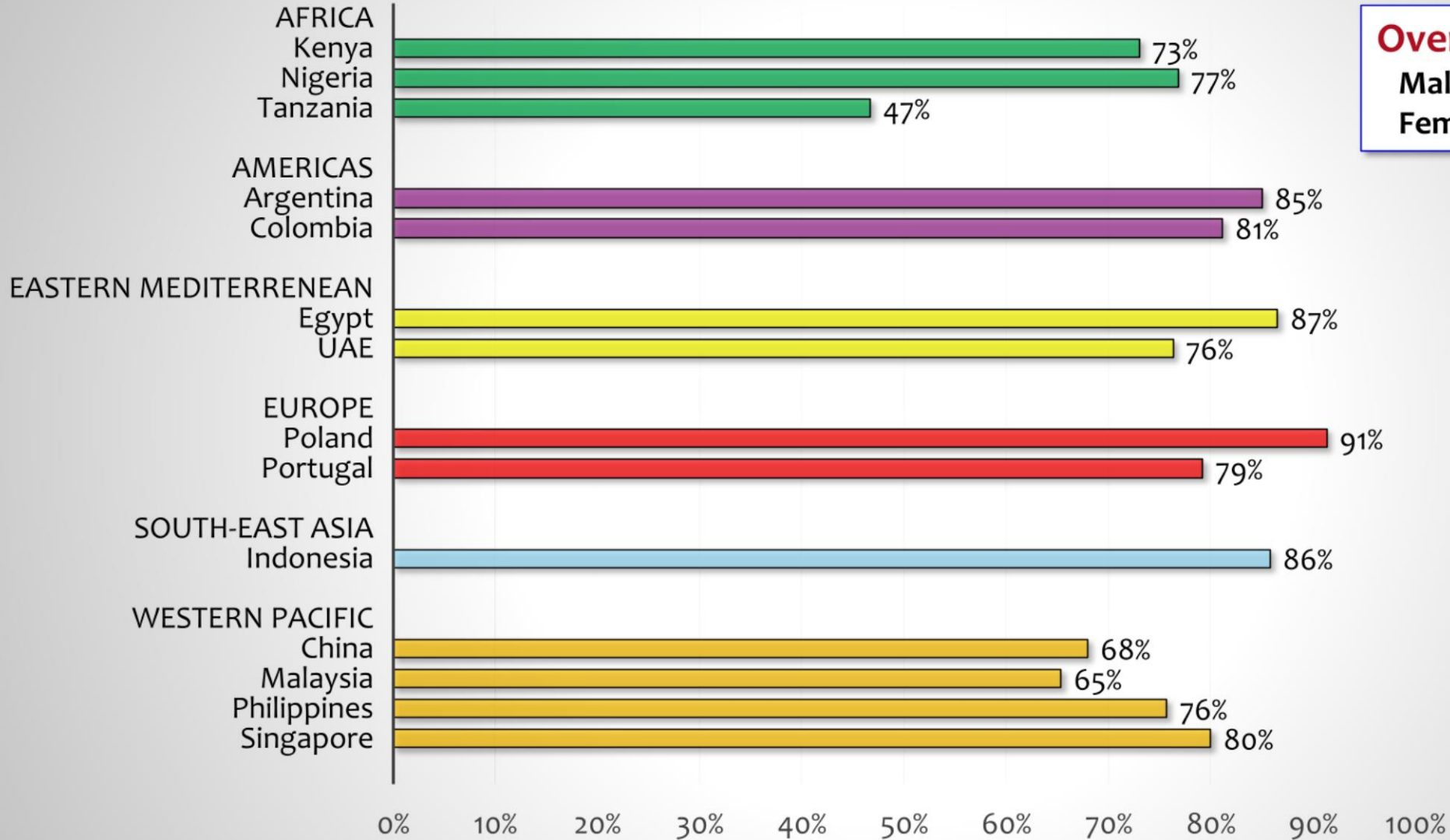


**Overall 57.0% (49.5-64.3)**  
**Males 55.5% (47.8-62.8)**  
**Females 62.0% (54.2-69.3)**



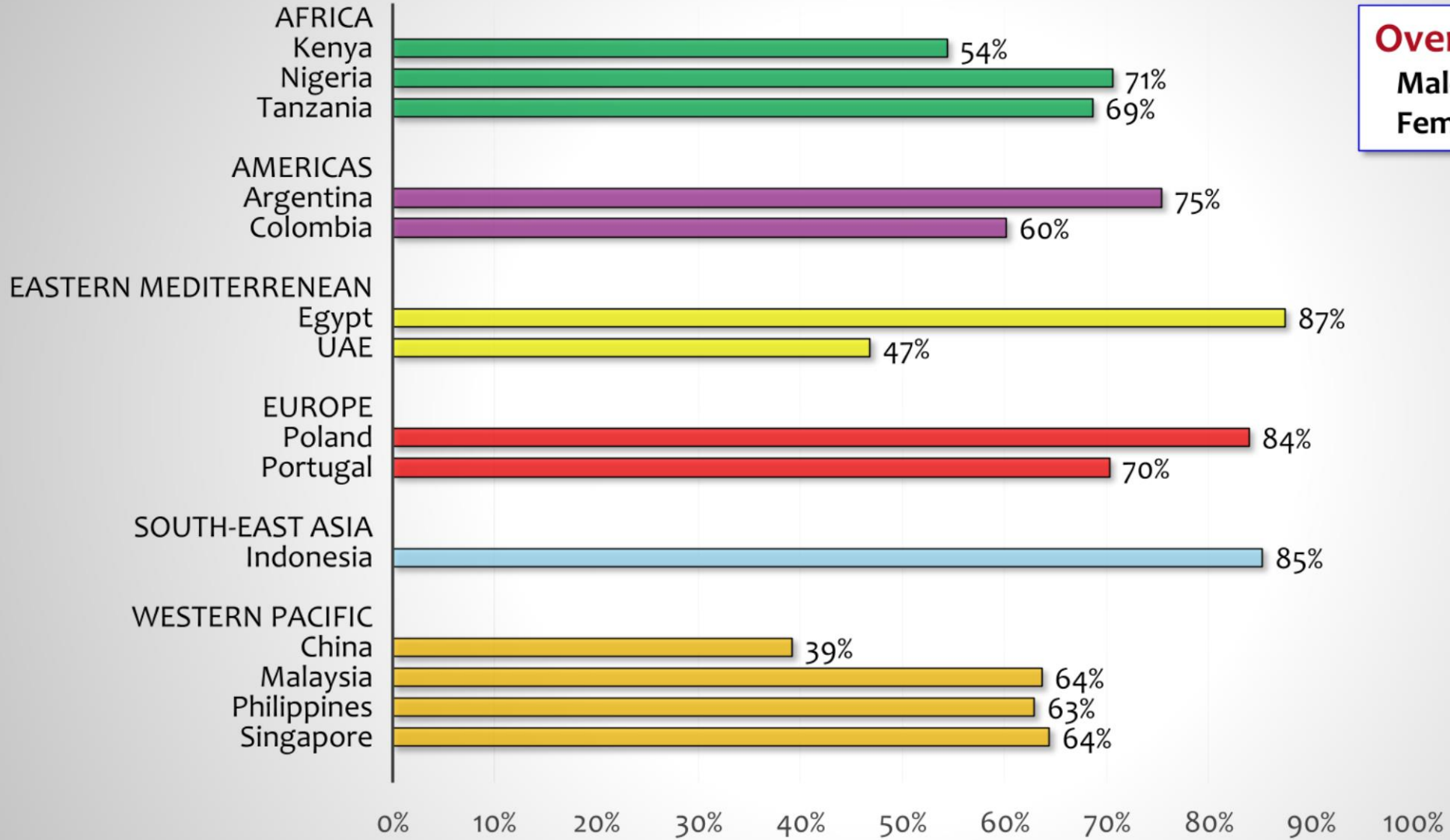


**Overall 94.2% (90.7-96.0)**  
**Males 94.9% (92.0-96.7)**  
**Females 93.1% (90.7-94.9)**

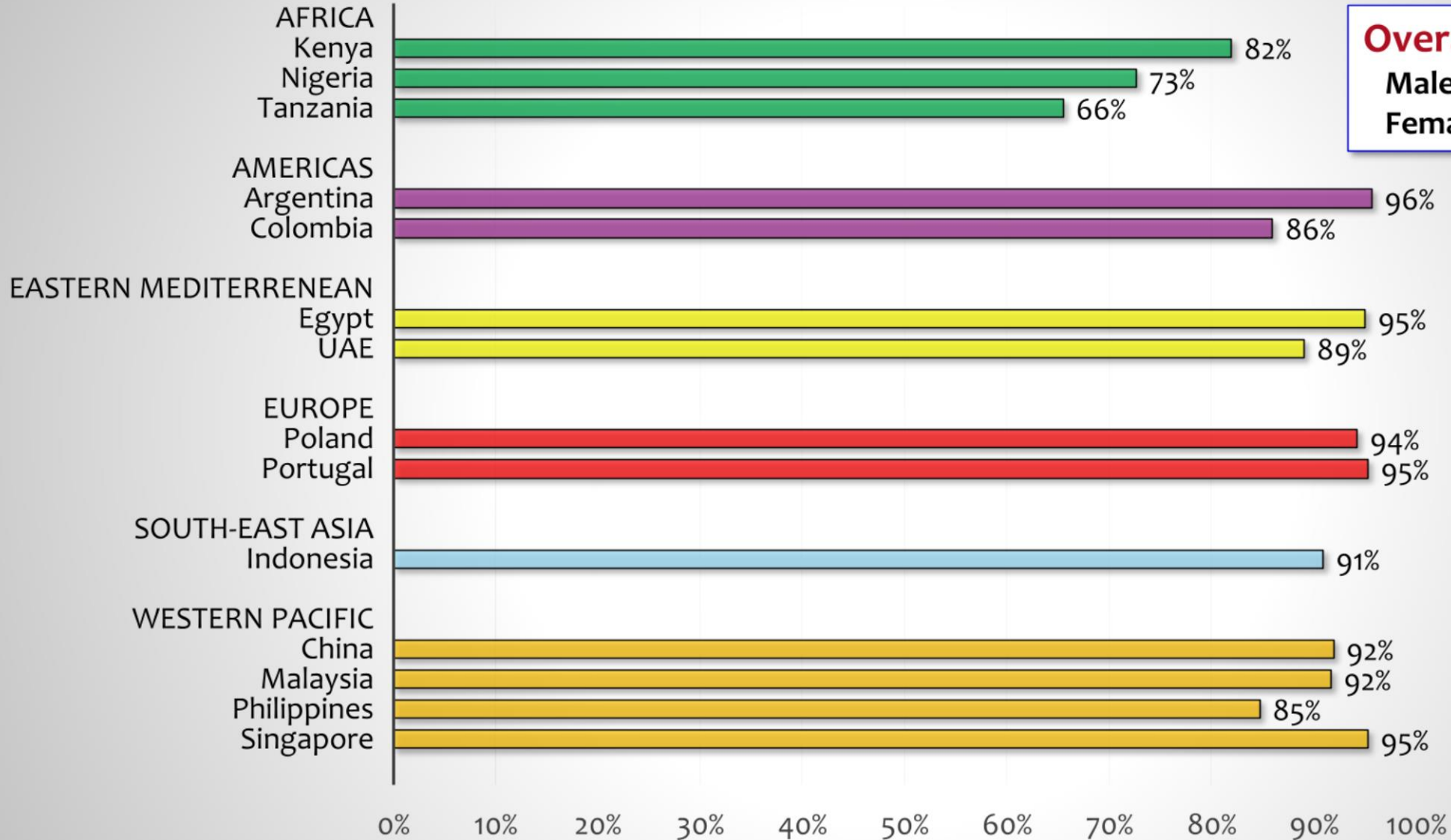


**Overall 78.5% (72.1-83.7)**  
**Males 80.0% (73.7-85.1)**  
**Females 75.2% (68.2-81.1)**

# Medication use: ACE inhibitors/ARBs

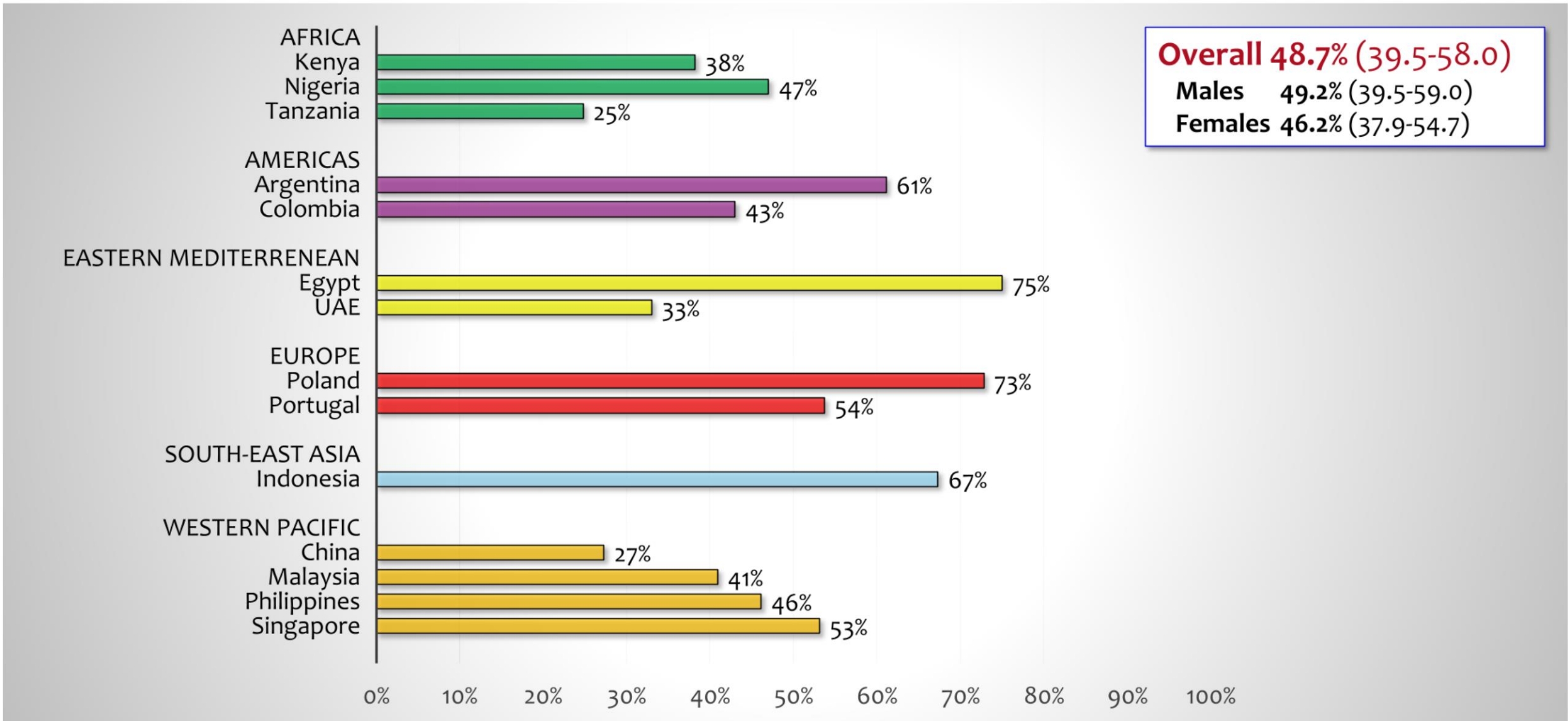


**Overall 67.9% (59.2-75.5)**  
**Males 67.4% (58.8-75.1)**  
**Females 68.2% (59.0-76.1)**



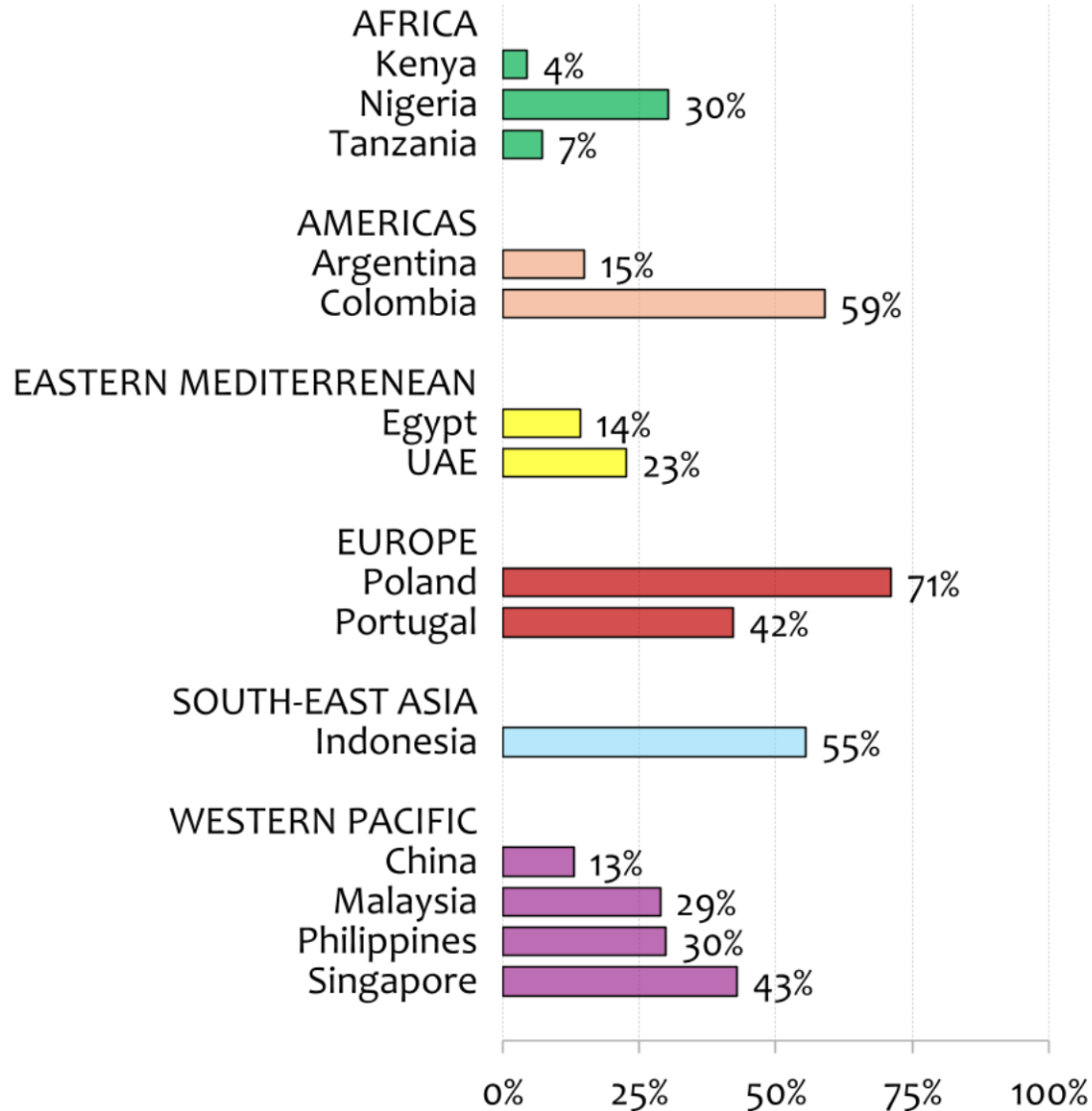
# Combined use preventive drugs

Use of all four “drug pillars” of CVD secondary prevention\*

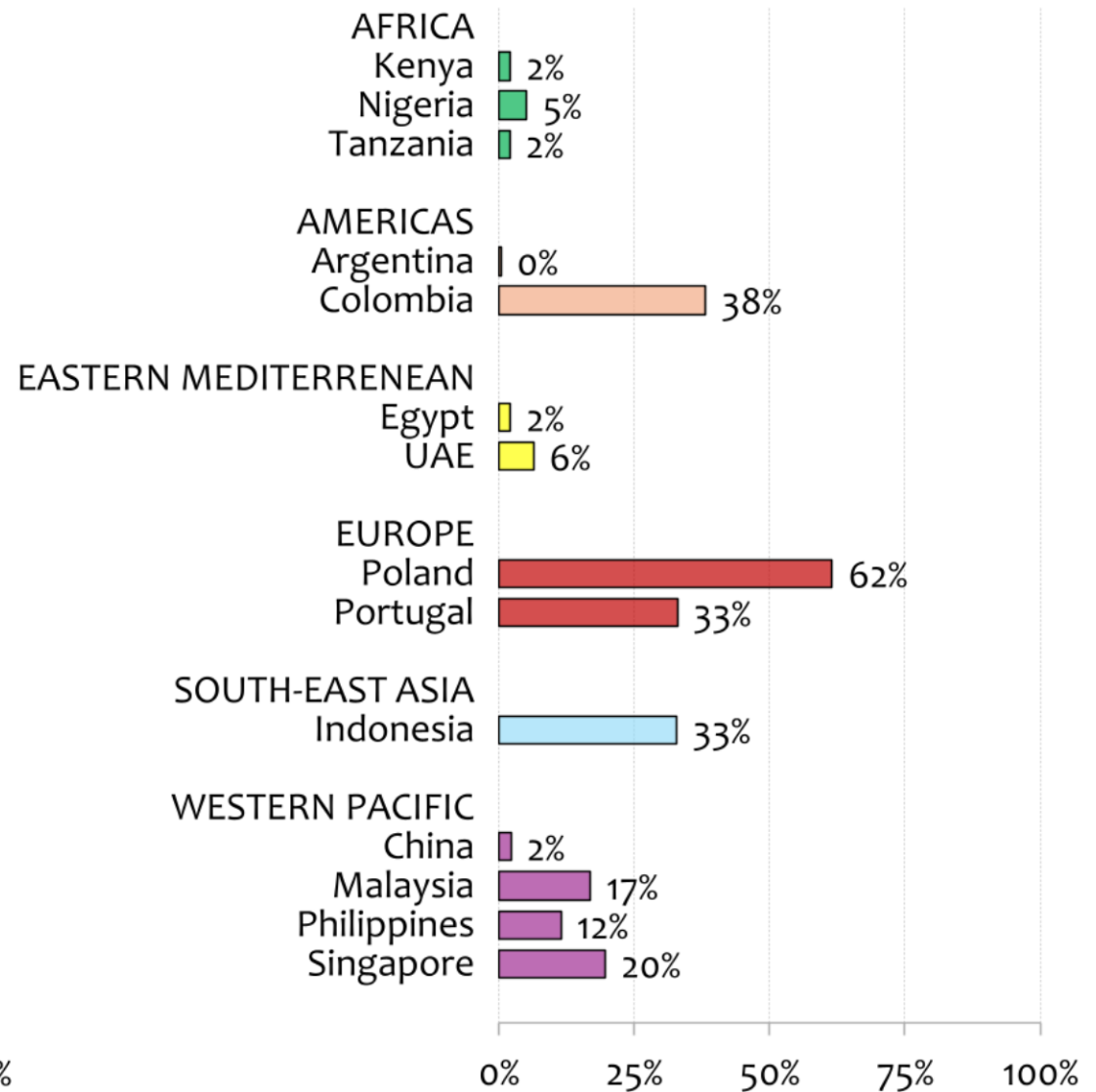


\*Using (1) antiplatelets/anticoagulants AND (2) beta blockers AND (3) RAAS inhibitors AND (4) lipid-lowering drugs

## Referral 26.8% (16.3-40.7)



## Attendance\* 9.0% (3.8-20.0)



\*Attending at least half of the advised sessions



# Guideline based target score\*

YOUR  
LOGO

## Ten-point score

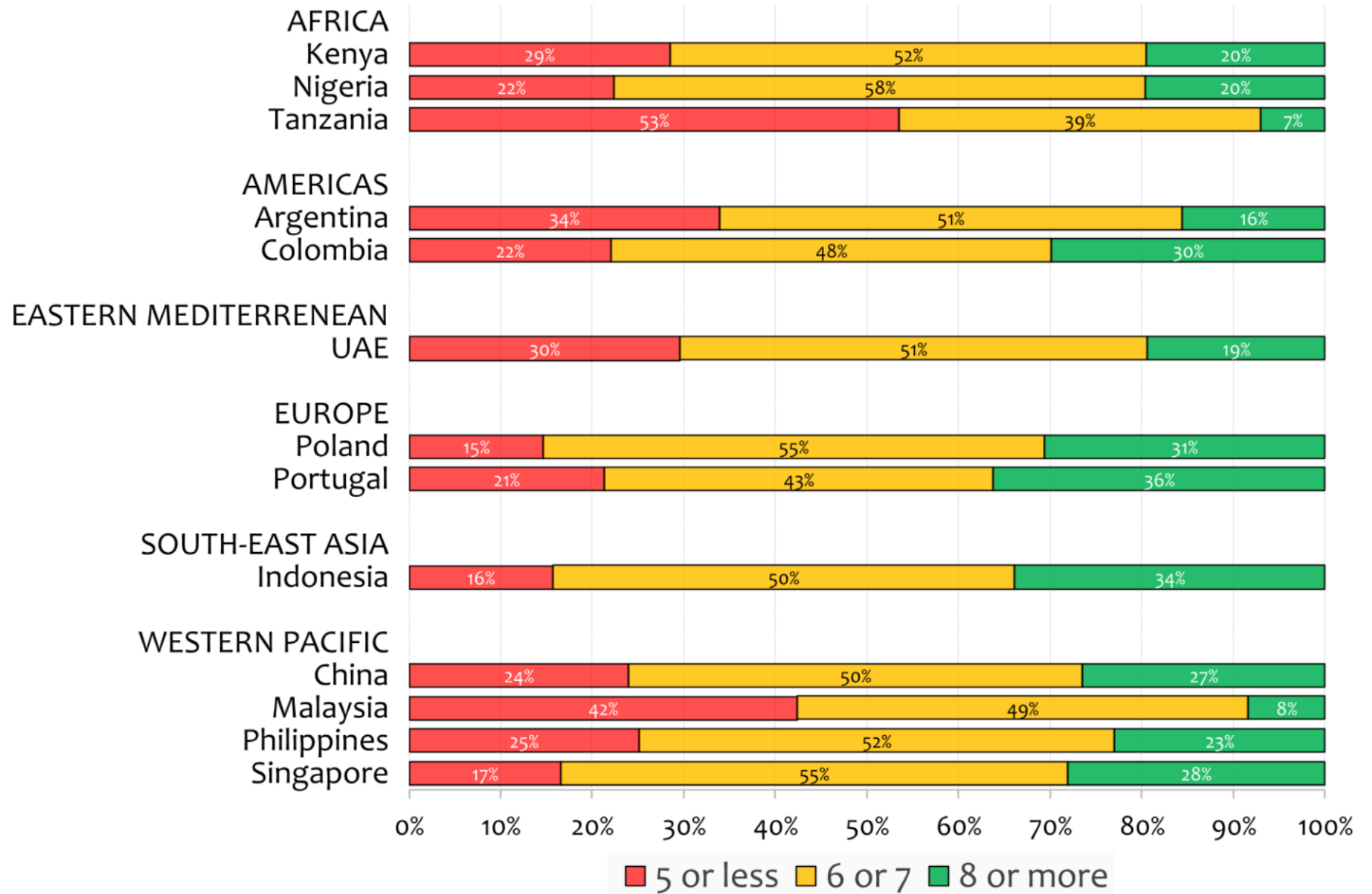
- ✓ Non-smoking
- ✓ BMI <25 kg/m<sup>2</sup>
- ✓ PA ≥150min/week
- ✓ BP <140/90 mm Hg
- ✓ LDLc <1.8 mmol/L
- ✓ HbA1c at target
- ✓ Antiplatelet Rx
- ✓ LLT Rx
- ✓ Beta Blocker Rx
- ✓ ACE inhibitor Rx

**8/10**    **17%**

**9/10**    **6%**

**10/10**   **1%**

\*Score ranging from 0 to 10





- ✓ INTERASPIRE provides a global picture of secondary prevention among adults with CHD, conducted during the COVID19 pandemic
- ✓ Global achievement of evidence-based lifestyle and medical risk factor targets was poor. Less than half of participants was taking the 4 “drug pillars” of CVD secondary prevention.
- ✓ Only 1% of participants achieved all 10 of the core lifestyle and risk factor targets recommended by prevention guidelines
- ✓ Females were less likely than males to achieve BP, lipid, and glycaemic targets
- ✓ Global cardiac rehabilitation referral and attendance rates, despite a Class 1 recommendation in all guidelines, were low, with a marked variability between WHO regions and countries



<b>Argentina</b>	Dr Maria Ines Sosa Liprandi, Dr Jose Luis Navarro Estrada
<b>China</b>	Dr Yong Huo, Dr Junbo Ge, Dr Yong Li
<b>Colombia</b>	Dr Miguel Urina Triana, Dr Adalberto Quintero
<b>Egypt</b>	Prof Hossam Hasan
<b>Indonesia</b>	Dr Ade Meidian Ambari
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中国心血管健康联盟  
Chinese Cardiovascular Association



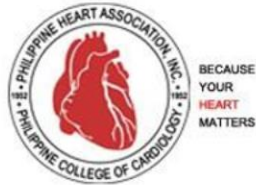
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## Scientific partners

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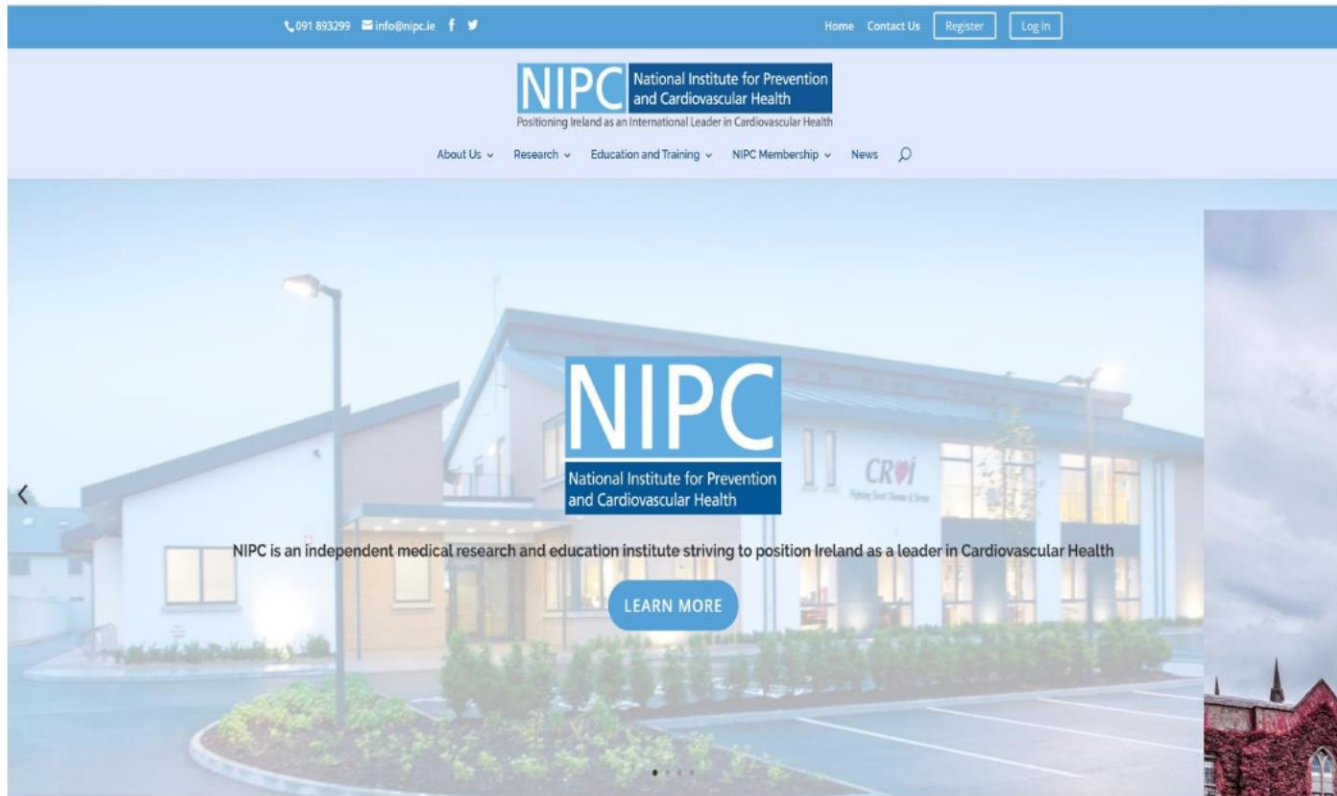


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