



P3.012: Increasing Lung Cancer Incidence in Women Aged 45–54 Years in Southern Asia: A GBD-based Spatiotemporal Analysis

Global Burden of Disease 2019 | Asia, 1990–2019

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BACKGROUND & OBJECTIVE

- TBL cancer remains a leading cause of cancer mortality worldwide.
- Asia carries a substantial burden, but incidence trends differ markedly by sex and age.
- Prior studies largely emphasized overall or age-standardized burden rather than granular female trends.
- Screening frameworks prioritize older, heavily smoking adults and may under-capture Asian never-smoking women.
- Household and ambient air pollution, domestic fuel combustion, and second-hand smoke are plausible contextual exposures.
- Objective:** identify sex-, age-, and geography-specific trends and recent regional hotspots.

METHODS

- DESIGN & SOURCE**
Repeated cross-sectional analysis using GBD 2019 estimates from GHDx
- SCOPE**
Asian countries and subregions; both sexes; 5-year age groups; 1990–2019
- MEASURES**
Annual incident cases and rates per 100,000; 95% UIs from 1,000 posterior draws
- DEFINITIONS**
GBD TBL cause hierarchy and ICD codes; Southern Asia defined as South Asia + Iran
- TREND MODELS**
Joinpoint Regression 4.2; log-linear models with permutation-based selection
- INTERPRETATION**
AAPC with 95% CI; increase or decrease when the entire CI excluded zero

PRIMARY FOCUS Recent trends during 2010–2019 among women aged 45–49 and 50–54 years.
ETHICS Publicly available de-identified data; approval and consent were not required.

COUNTRY-LEVEL HOTSPOTS

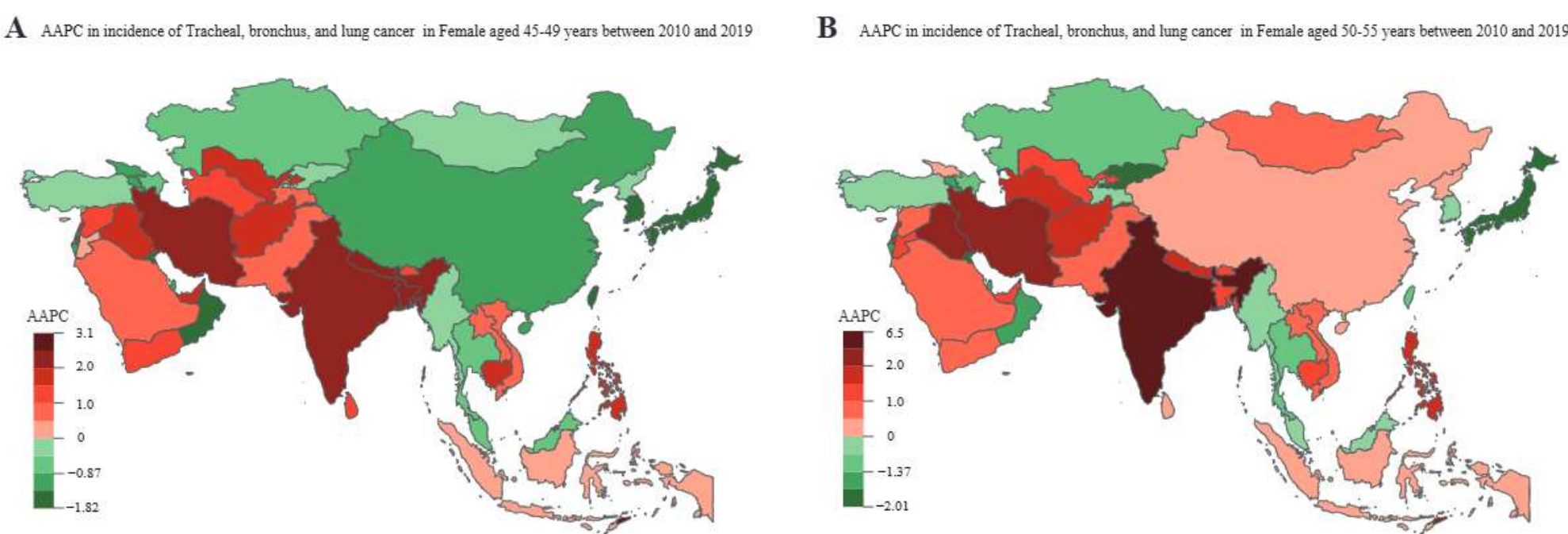


Figure 2. Country-level AAPC among women aged 45–49 (A) and 50–54 (B), 2010–2019. Red indicates increasing incidence. Southern Asia contained several of the strongest country-level rises.

STRENGTHS & LIMITATIONS

- Standardized, comparable estimates spanning 3 decades.
- Country, subregion, sex, and 5-year age-group comparisons.
- Model-based ecological data; registry quality varies and causal inference is not possible.

KEY FINDINGS

+2.11%/yr

Southern Asia
Women 50–54

+1.75%/yr

Southern Asia
Women 45–49

+6.54%/yr

India
Women 50–54

+0.99%/yr

Asia-wide
Women 50–54

Signal concentrated in middle-aged women. Men generally declined. From 2010–2019, women aged 45–49 declined Asia-wide (AAPC –0.88), whereas women aged 50–54 increased (AAPC +0.99).

SUBREGIONAL PATTERN

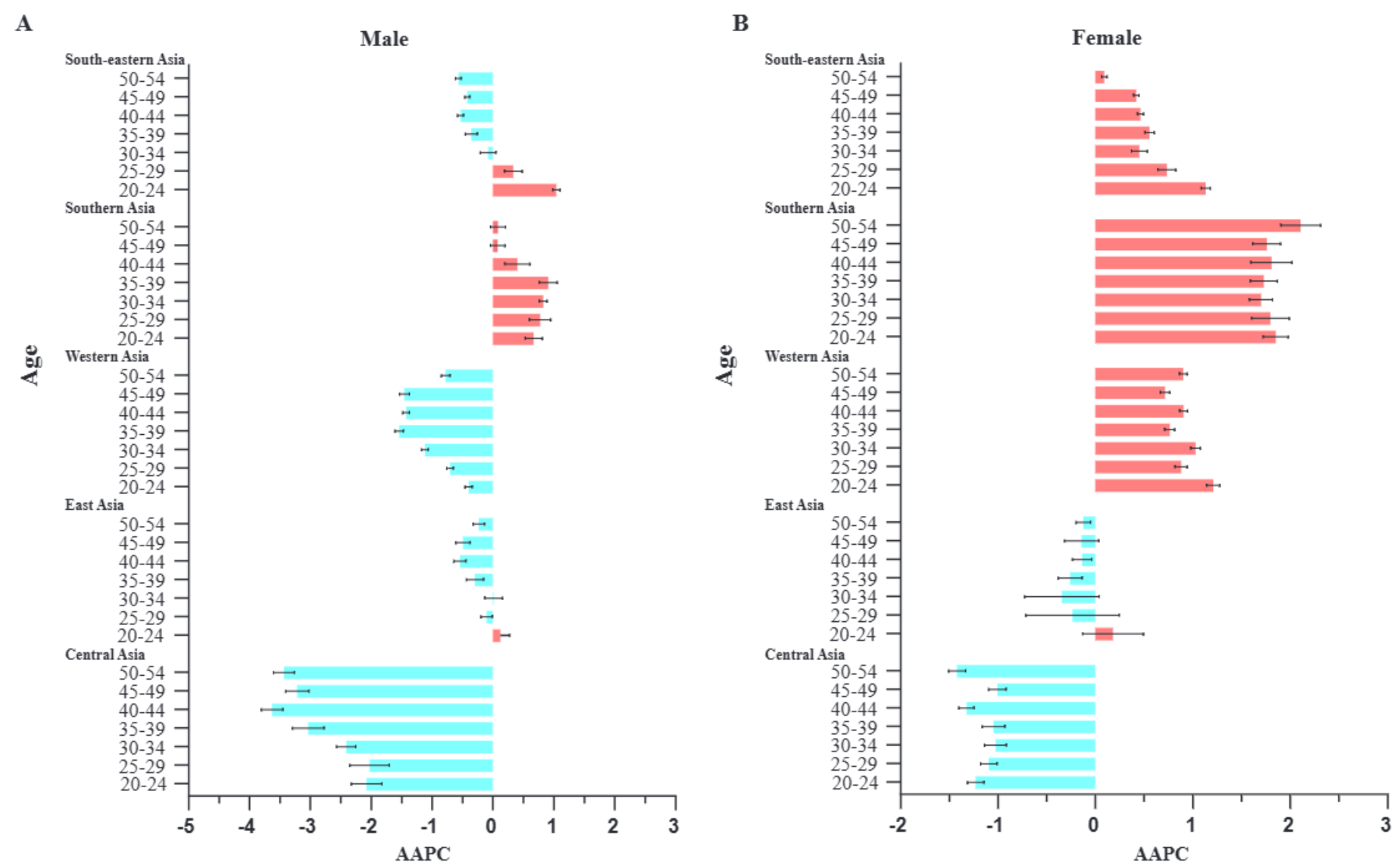


Figure 3. Recent AAPC by sex, age group, and Asian subregion. Southern Asia had the strongest female increases: +1.75%/yr at age 45–49 and +2.11%/yr at age 50–54.

CONCLUSIONS & IMPLICATIONS

- Female TBL trends were age-specific: the clearest recent Asia-wide rise occurred at age 50–54.
- Southern Asia was the principal hotspot; increases spanned multiple countries and were strongest in India.
- Women aged 45–54 in Southern Asia should receive greater attention in surveillance and individualized risk assessment.
- Promote earlier symptom recognition and timely diagnosis, including assessment of relevant non-tobacco exposures.
- These ecological signals do not justify universal screening expansion; validation should integrate smoking, environmental exposure, histology, molecular subtype, stage, and access-to-care data.

REFERENCES & DISCLOSURES

GBD 2019 Collaborators. Lancet. 2020;396:1204–1222. | Rezaei et al. Thorac Cancer. 2023;14:1668–1706. | Hosgood et al. Hum Genet. 2015;134:333–341.
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RESULTS: AGE- AND SEX-SPECIFIC TRENDS

Figure 1. Age-Specific Lung Cancer Incidence Trends in Asia, 1990–2019

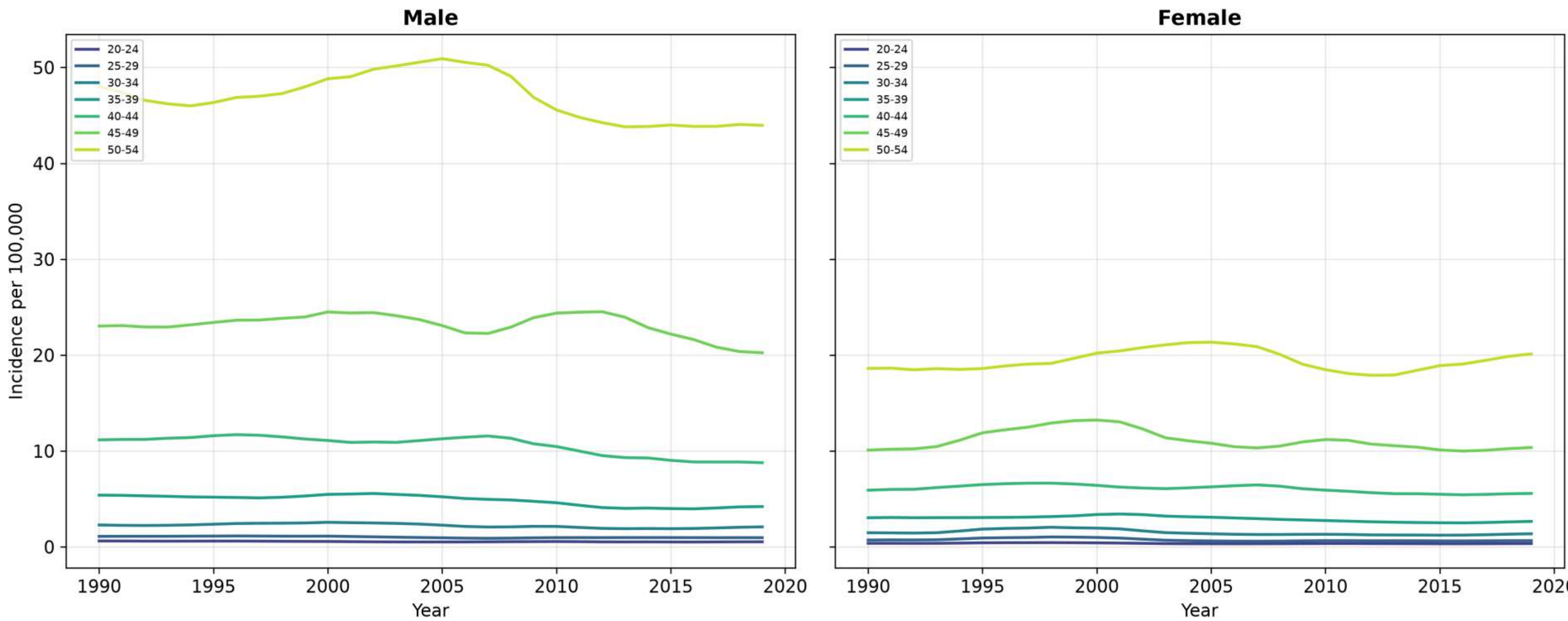


Figure 1. Age-specific TBL cancer incidence in Asia, 1990–2019. Male rates generally declined; women aged 50–54 rose from 18.48 to 20.13 per 100,000 during 2010–2019.

RESULTS: COUNTRY HETEROGENEITY

The average annual percentage change (AAPC) of the incidence of Tracheal, bronchus, and lung cancer among Female in Asian countries

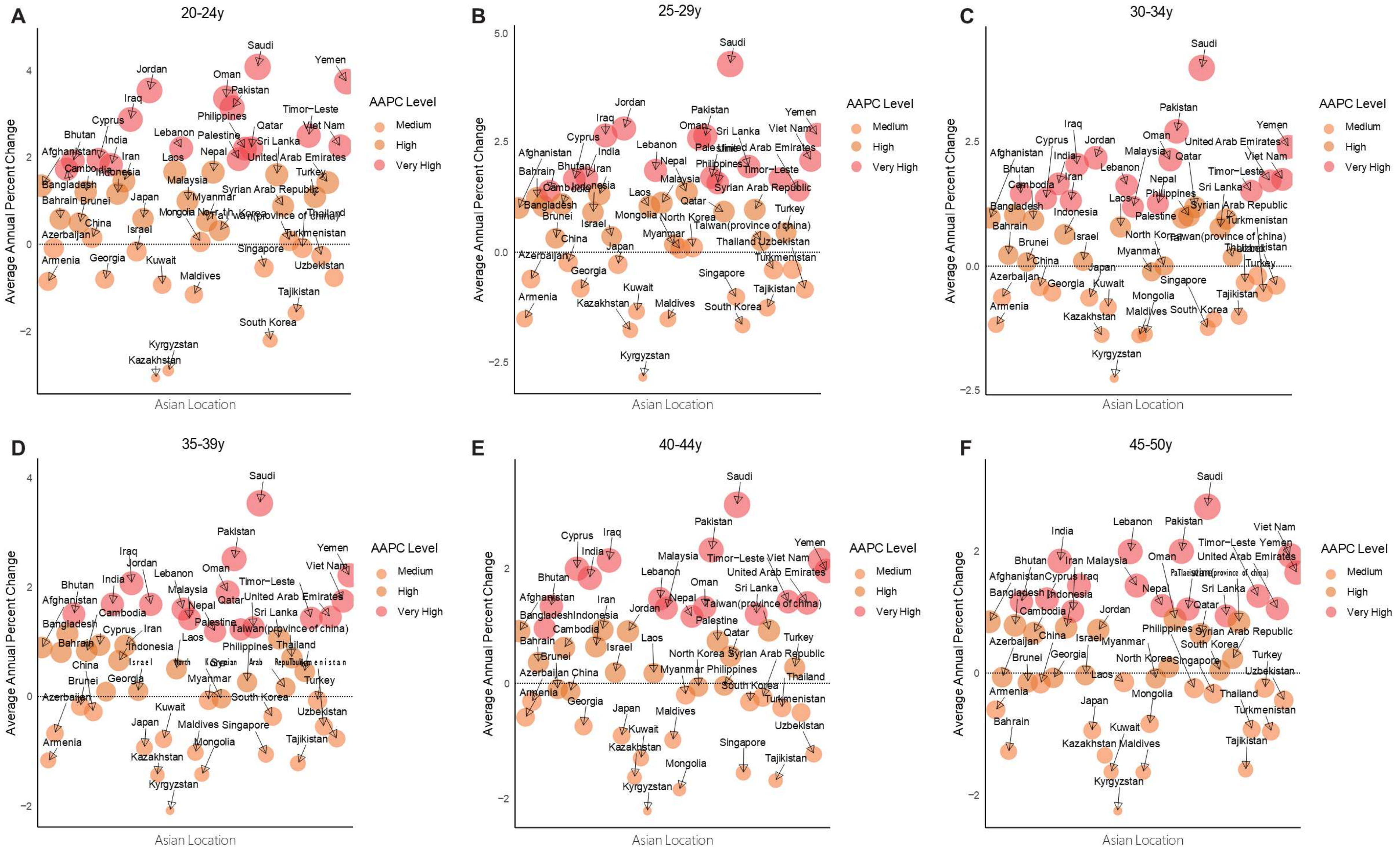


Figure 4. Country-level female AAPC across age groups, 2010–2019. In Southern Asia, trends were positive in all countries at age 45–49; at age 50–54, most increased, led by India (+6.54%/yr), while Maldives declined (–2.05%/yr).