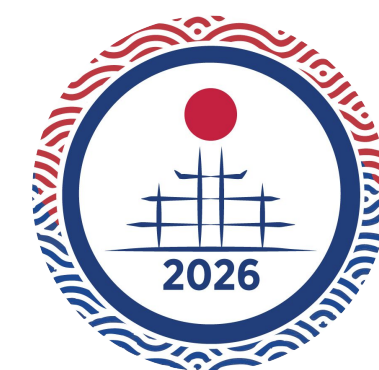




P1.01.05: Lung Cancer Among Young and Middle-Aged Adults in Southeast Asia: Cross-National Trends in Incidence and Mortality, 1990-2021

F.D.V. Ho^{1,2}, J. Chen³, J.E.K. Tamin², E.J.G. Feliciano⁴, Y. Samaha^{5,6}, J.F. Wu⁷, J. Interior⁸, E. Feng⁹, L. Nguyen⁹, I. Nguyen⁹, P. Iyengar⁹, S. Venkateswaran^{9,10}, E. Feng¹¹, J. Willmann^{9,12}, C.D.U. Ang¹³, K. Magsanoc-Alikpala¹⁴, K. Yee¹⁵, N. Bhoo-Pathy¹⁶, I. Chitapanarux¹⁷, C. Garcia¹⁸, E.C. Dee⁹, **A.E. Go¹⁹**
¹Department of Health Policy and Management, Harvard T.H. Chan School of Public Health, Boston, MA, USA; ²College of Medicine, University of the Philippines, Manila, PH; ³Icahn School of Medicine at Mount Sinai, New York, NY, USA; ⁴Department of Hematology and Oncology, Northwell Health Cancer Institute, Zucker School of Medicine-Northwell, Manhasset, NY, USA; ⁵NYC Health + Hospitals/Elmhurst, New York, NY, USA; ⁶Massachusetts General Hospital, Charlestown, MA, USA; ⁷Medical College of Wisconsin, Milwaukee, WI, USA; ⁸Mapua School of Medicine, Makati City, PH; ⁹Memorial Sloan Kettering Cancer Center, New York, NY, USA; ¹⁰University of Pennsylvania, Philadelphia, PA, USA; ¹¹Stanford University, Palo Alto, CA, USA; ¹²University Hospital Zurich, Zurich, CH, Switzerland; ¹³University of Santo Tomas Hospital, Manila, PH; ¹⁴CanServe Foundation, Manila, Philippines; ¹⁵SingHealth Duke - NUS Global Health Institute, Singapore, SG; ¹⁶Universiti Malaya, Kuala Lumpur, MY; ¹⁷Chiang Mai University, Chiang Mai, TH; ¹⁸New York Presbyterian Hospital - Weill Cornell Medicine, New York, NY, USA; ¹⁹Cebu Institute of Medicine, Cebu, PH
Correspondence: fvho@upcm.edu.ph, adriango@cim.edu.ph



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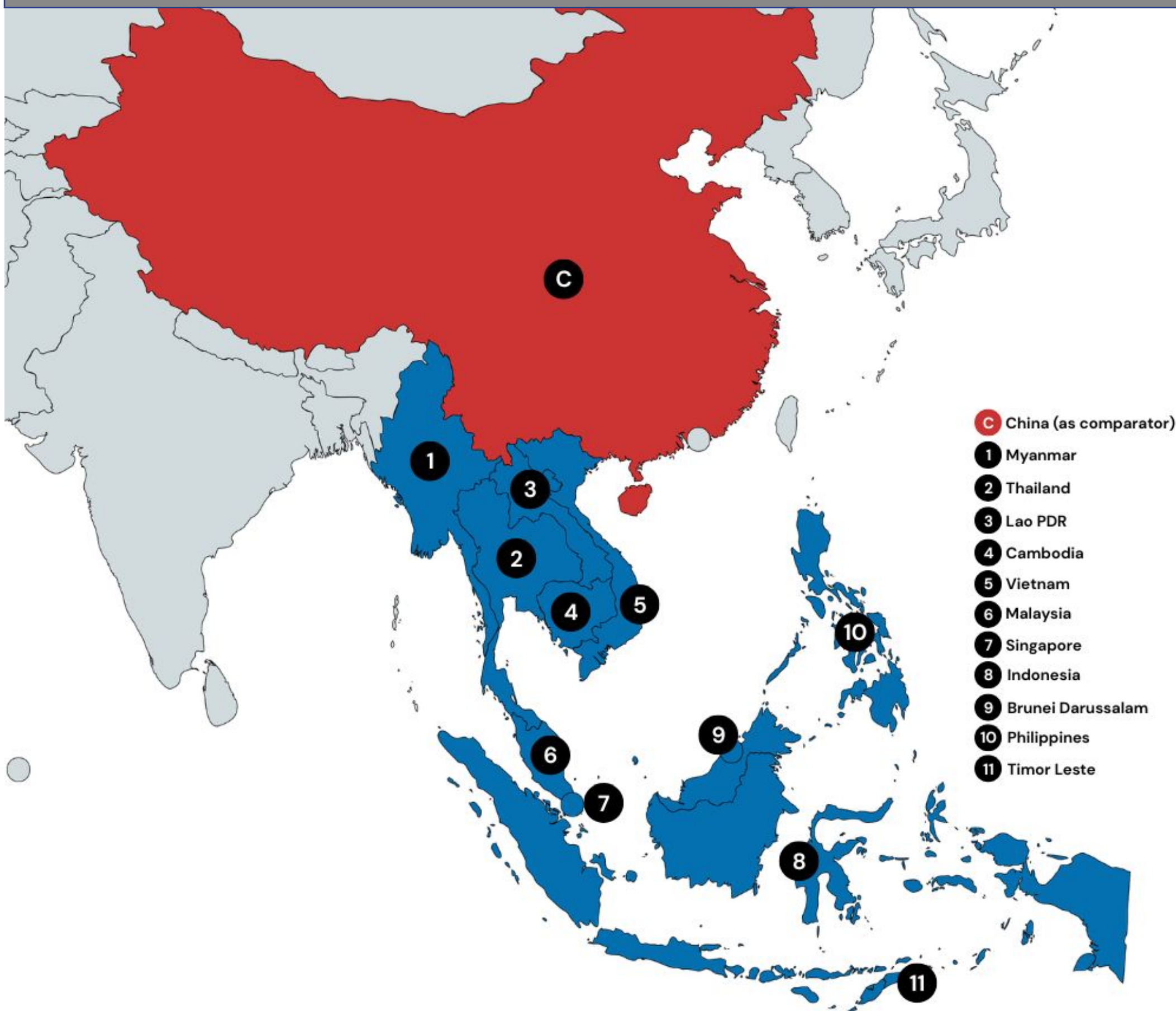
INTRODUCTION

- **Lung Cancer among young and middle-aged adults is an emerging challenge in Southeast Asia.**
- Substantial variation in smoking prevalence, environmental carcinogen exposure, and healthcare access may contribute to divergent disease outcomes between countries and sexes.
- Therefore we examined long-term trends in lung cancer incidence and mortality for young and middle-aged adults across SEA from 1990-2021, with China as the comparator.

METHODS

- **Global burden of disease (GBD) 2021 data¹** on tracheal, bronchial, and lung cancers was used as reference
- Incidence and mortality per 100,000 population were analyzed for 11 SEA countries and China as the comparator
- Analyses were stratified by sex and limited to individuals aged **20-54 years old**
- Temporal patterns were quantified using **Estimated Annual Percent Change (EAPC)**

Countries included in the analysis



RESULTS

- **Marked heterogeneity was observed across countries and sexes**
- **Among females**, incidence rose sharply in in **Vietnam** (1.98 to 4.94; EAPC 3.51; 95% CI 3.29-3.73) and **Malaysia** (1.93 to 3.42; EAPC: 2.17, 95% CI: 1.99-2.35).
- **Among males**, increased in **Vietnam** (7.21 to 12.88; EAPC: 2.53, 95% CI: 2.30-2.76) and **China** (13.66 to 20.30; EAPC: 1.35, 95% CI: 1.16-1.53), but **declined in Singapore** (7.99 to 5.01; EAPC: -1.30, 95% CI: -1.53 to -1.08) **and Laos** (9.83 to 6.83; EAPC: -1.23, 95% CI: -1.34 to -1.11).
- **Mortality largely paralleled incidence**, with Vietnam and China showing sharp increases, while Singapore and Laos experienced sustained declines.

Figure 1. Trends in Lung Cancer Incidence and Mortality across SEA, Ages 20-54 years old

Data source: Global Burden of Disease (GBD) Study

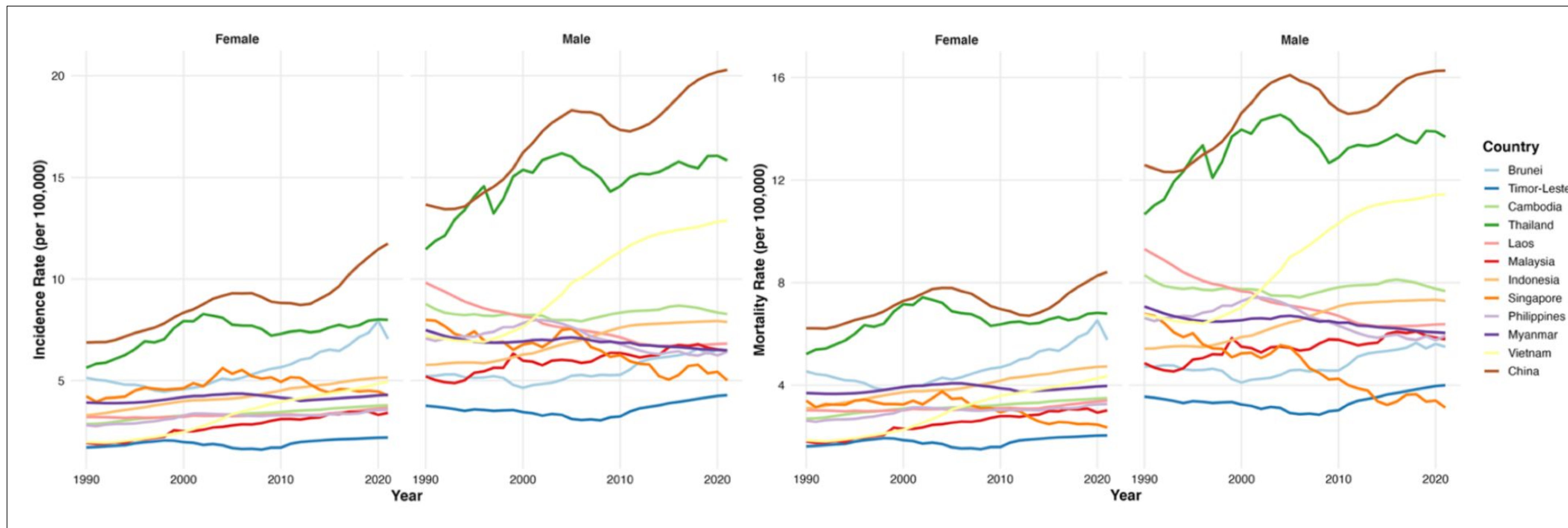


Table 1. Tobacco-attributable fraction (%) of lung cancer deaths by sex, Southeast Asia and China, 1990-2021

COUNTRY	FEMALE			MALE		
	1990 % (95% CI)	2021 % (95% CI)	Change 1990–2021 (% points)	1990 % (95% CI)	2021 % (95% CI)	Change 1990–2021 (% points)
Brunei Darussalam	39.29 (27.53, 50.44)	28.17 (18.02, 39.10)	-28.31 (-48.41, -4.23)	73.22 (67.81, 78.27)	64.95 (57.99, 72.31)	-11.30 (-19.34, -2.86)
Cambodia	17.69 (9.69, 27.10)	18.16 (8.70, 28.29)	2.63 (-29.75, 44.81)	74.03 (68.77, 78.18)	70.78 (64.85, 76.20)	-4.39 (-11.19, 2.39)
Indonesia	12.58 (5.67, 20.03)	13.34 (5.31, 21.43)	6.04 (-16.79, 35.14)	62.70 (57.63, 67.34)	65.08 (60.80, 68.97)	3.80 (-2.17, 9.82)
Laos	19.71 (11.53, 30.24)	16.44 (8.85, 24.59)	-16.57 (-40.93, 17.66)	70.83 (65.52, 75.70)	65.05 (59.33, 70.36)	-8.16 (-14.70, -0.86)
Malaysia	13.25 (5.08, 24.03)	9.47 (3.61, 18.90)	-28.51 (-45.63, -8.91)	69.73 (64.12, 75.15)	62.36 (56.51, 67.97)	-10.58 (-17.61, -4.36)
Myanmar	32.98 (24.53, 41.85)	14.18 (9.50, 19.81)	-57.01 (-69.21, -41.55)	67.80 (62.44, 72.64)	46.02 (40.73, 51.50)	-32.12 (-37.54, -25.34)
Philippines	26.35 (16.85, 35.75)	15.99 (9.58, 22.51)	-39.29 (-53.16, -23.14)	72.20 (67.90, 76.21)	62.29 (57.25, 66.70)	-13.72 (-18.32, -9.59)
Singapore	35.71 (24.13, 47.26)	23.42 (16.15, 31.40)	-34.43 (-54.45, -4.08)	67.43 (59.53, 74.68)	51.96 (44.53, 59.17)	-22.95 (-30.84, -14.01)
Thailand	21.70 (13.85, 31.58)	10.72 (5.69, 16.90)	-50.61 (-66.56, -32.24)	70.42 (65.74, 74.75)	57.88 (52.78, 62.58)	-17.80 (-22.84, -13.08)
Timor-Leste	12.73 (6.34, 21.70)	11.12 (5.41, 18.86)	-12.60 (-44.00, 30.27)	61.18 (53.37, 69.34)	60.58 (53.25, 68.16)	-0.98 (-13.31, 12.91)
Vietnam	14.70 (5.97, 25.86)	12.71 (4.95, 22.97)	-13.55 (-37.43, 12.19)	70.29 (65.21, 75.27)	70.94 (66.11, 75.45)	0.91 (-4.04, 6.48)
China	22.97 (11.16, 34.59)	23.06 (11.25, 34.50)	0.42 (-16.85, 28.73)	75.59 (71.64, 79.42)	77.62 (73.23, 81.31)	2.69 (0.28, 5.67)

DISCUSSION AND CONCLUSION

- Lung cancer trends among young and middle-aged adults show divergent country- and sex-specific trends
- While tobacco remains the primary driver, non-tobacco risks such as biomass fuel exposure and air pollution likely contribute, especially among women who are non-smokers
- Tailored prevention and control strategies—including tobacco taxation, clean energy transitions, and improved early detection—are needed to address the region's evolving lung cancer burden.

Future Direction for Research

- Recognizing and responding to heterogeneity in lung cancer outcomes is necessary in future research
- The relative contribution of tobacco and non-tobacco carcinogens to lung cancer should be examined among young and middle aged adults in SEA

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