

# Addressing health inequities in Southeast Asia: challenges and opportunities



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The Inequality-Adjusted Human Development Index (IHDI) was developed to overcome some limitations of the Human Development Index (HDI). While HDI measures the average human development within a country based on some factors, it does not account for inequality within the factors. IHDI makes up for this by accounting for inequality in the distribution of each component of the HDI.<sup>1</sup> In a study, IHDI is recognized to predict human health more reliably than HDI.<sup>2</sup> Despite this recognition, studies are scarce on the correlation between IHDI and health outcomes.<sup>3</sup>

## Disparities in oral cancer

Despite their geographic proximity, South Asia (SA) and Southeast Asia (SEA) exhibit disparities in oral cancer (OC) epidemiology. Socioeconomic factors play a role in shaping the burden of OC. Studies have indicated a negative correlation between mortality-to-incidence ratios (MIR) and all sub-categories within the IHDI, encompassing health, income, and education. However, OC incidence and mortality are also prompted by regional differences and gender. Generally, nations with higher IHDI tend to have lesser MIR. SA people and males typically experience higher OC incidence and mortality rates.<sup>3</sup> Fig. 1A illustrates a condensed overview of the HDR (Human Development Report) for 2020 in the SA and SEA regions. It summarizes key findings and metrics regarding human development in these geographical areas.<sup>5</sup> Addressing disparities in development within countries could be a practical strategy for improving the burden and prognosis of OC.<sup>3</sup>

## Human papillomavirus (HPV) screening and vaccination disparities in Pakistan and Asia

Concurrently, there is a significant concern regarding the lack of screening for human papillomavirus (HPV) among transgender individuals in Pakistan,<sup>6</sup> considering the nation's large population (245 million people).<sup>7</sup>

Anal cancer primarily begins from high-risk HPV types, particularly subtype-16, which accounts for 80.7% of persistent infections.<sup>6</sup> There was an overall 65% prevalence of HPV in Karachi, with predominant subtypes being HPV16 (35.1%), 18 (23.2%), 35 (21.1%), 59 (10.8%), 58 (8.2%), 56 (7.7%), 31 (7.2%), 45 (7.2%), 33 (6.7%), and 52 (6.7%) among homosexuals and transgender sex workers (HIV-positive 87% vs. HIV-negative 48%;  $\chi^2$   $p \leq 0.001$ ).<sup>6</sup> On the contrary, numerous Asian nations have rolled out nationwide HPV vaccination campaigns. For instance, the Maldives launched its vaccination program for girls in 2019, while Thailand and Sri Lanka followed suit in 2017, and Bhutan began in 2010. Also, India and Bangladesh have commenced several pilot projects.<sup>8</sup>

## Antenatal care (ANC) and facility-based delivery

The maternal and global health communities frequently regard the maternal health disparities elucidated in this series paper are often viewed as deeply entrenched and difficult to address by maternal and global health communities. Nonetheless, these inequalities endure solely because the global health community fails to confront the fundamental structural determinants.<sup>9</sup> In SA countries, high maternal mortality rates continue to pose significant public health challenges. Antenatal care (ANC) and facility-based delivery prevail in 59.27% and 86.52% of cases. Maldives stands out with the highest rates of ANC (96.83%) and facility-based delivery (99.39%), whereas Bangladesh presents the lowest rates of ANC (47.01%) and facility-based delivery (49.81%) (Fig. 1B). Various factors such as female and spouse education levels, socioeconomic status, BMI, and residing in urban areas significantly impact the utilization of maternal health services.<sup>4</sup> The Maternal Mortality Rate (MMR) in Indonesia was 173 deaths per 100,000 live births in 2020, marking a decline from 207 per 100,000 live births in 2012.<sup>10</sup> Similarly, Laos reported a high MMR, with 126 deaths per 100,000 live births in 2020, compared to 246 deaths per 100,000 live births in 2012.<sup>10</sup> Although both countries have shown a gradual decrease in MMR, they have yet to meet the Sustainable Development Goals (SDGs) target of less than 70 per 100,000 live births.<sup>10</sup>

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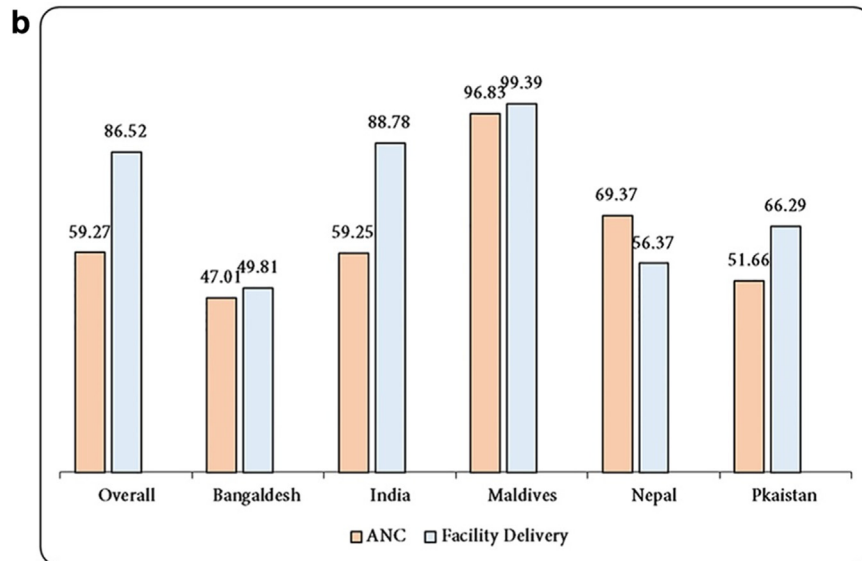
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**a**

Country	HDI	IHDI	Overall loss %	IALEI	IAEI	IAII
<b>South Asia</b>						
Pakistan	0.557	0.384	31.1	0.510	0.227	0.489
India	0.645	0.475	26.4	0.613	0.340	0.515
Sri Lanka	0.782	0.673	13.9	0.815	0.657	0.568
Bangladesh	0.632	0.478	24.4	0.669	0.332	0.492
Nepal	0.602	0.446	25.9	0.645	0.308	0.448
Bhutan	0.654	0.476	27.2	0.660	0.289	0.565
<b>Southeast Asia</b>						
Thailand	0.777	0.646	16.9	0.810	0.557	0.596
Indonesia	0.718	0.590	17.8	0.685	0.545	0.551
Laos	0.613	0.461	24.8	0.571	0.331	0.518
Cambodia	0.594	0.475	20.0	0.628	0.352	0.485
Timor-Leste	0.606	0.436	28.1	0.596	0.281	0.495
Singapore	0.938	0.813	13.3	0.954	0.751	0.750
Vietnam	0.704	0.588	16.5	0.742	0.519	0.526
Philippines	0.718	0.587	18.2	0.668	0.610	0.498

Abbreviations: HDI, Human Development Index; IAEI, Inequality-Adjusted Education Index; IAIL, Inequality-Adjusted Income Index; IHDI, Inequality-adjusted HDI; IALEI, Inequality-Adjusted Life Expectancy Index; Overall loss %, loss of human development due to inequalities.



**Fig. 1:** a) A summary of the HDR (Human Development Report) for 2020 in SA and SEA (United Nations Development Program. Human Development Report 2020) (Adapted from Amanat et al.,<sup>3</sup>). b) The aggregate occurrence rate of maternal health service utilization among women, encompassing both antenatal care (ANC) and facility delivery (Adapted from Rahman et al.,<sup>4</sup>).

**Rising breast cancer incidence and disparities**

The rise in breast cancer incidences among Asian women, particularly within the younger Asian American (AsAm) demographic, highlights the pressing necessity for proactive measures as healthcare professionals address this trend and brace for its further

intensification.<sup>11</sup> In 1990 and 2014, breast cancer rate showed a significant increase across all populations except for Non-Hispanic White (NHW) individuals (Estimated Annual Percentage Change, EAPC = -0.2%/year, 95% Confidence Interval CI = -0.73 to 0.33%) and women from Japan (EAPC = 0.22%/year, 95%

CI = -1.26 to 1.72%). Notably, a substantial variation was observed among the subgroups of Asian ethnicity, with women from Korea experiencing the highest yearly expansion in breast cancer (EAPC = 2.55%/year, 95% CI = 0.13–5.02%). In contrast, women from China had the smallest yearly rise (EAPC = 0.65%/year, 95% CI = 0.03–1.27%).<sup>12</sup> Racial disparities continue to exist among breast cancer patients in the US. Considering the intricate nature of this demographic, it's essential to customize treatment and care strategies to meet the diverse sub-ethnicities, changes in culture, and unique barriers to accessing healthcare within this population.<sup>11</sup> Among Asian regions, Western Asia has the highest Age Standardized Mortality Rate at 15.1 per 100,000 individuals,<sup>13,14</sup> with South-eastern Asia following closely at 14.1 per 100,000 individuals,<sup>13</sup> highlighting significant regional disparities.<sup>13,14</sup> This shows significant regional disparities in age-standardized mortality rates among Asian regions (Described in [Supplementary file](#)).

### Toward health equity in Southeast Asia

Vietnam has made strides in health-focused MDGs (Millennium Development Goals) but lacks research on equity strategies. Inequalities persist, favoring the wealthy in resource distribution and healthcare access. Disparities are evident in staffing levels, health budget allocation, and availability of medical facilities, particularly in provincial hospitals. Antenatal care, medical expertise in community centers, and health outcomes favor wealthiness. Regions like Mountain areas and Central Highlands face challenges in service delivery and health status. Intra-regional disparities exacerbate issues in the Red River Delta and the South East region. Targeted policies are needed to address these gaps in service capacity and health workforce distribution.<sup>15</sup>

A study assessed the income disparities in the Case Fatality Rate (CFR) (reported from January 23, 2020, to October 2, 2021) of symptomatic COVID-19 patients in a total of 7406 with recorded residence information in Hong Kong.<sup>16</sup> The study revealed that the CFR stood at 3.07% in the zone of lesser income, doubling the rate of 1.34% observed in other parts. While terrible reporting delays were linked per a hazard ratio (HR) at around 1.9, their mediating impact was only weakly evident for age, with no significant impact observed for income level or gender. Thus, in Hong Kong, the elevated CFR was primarily linked to aged people (HR 25.967; 95% CI 14.254–47.306) and lesser income (HR 1.558; 95% CI 1.122–2.164). This discrepancy in COVID-19 mortality rates across income areas remains not imputable to reporting delays but to health disparities within Hong Kong. The vulnerabilities are anticipated to persist beyond the conclusion of test-and-trace measures and could continue to be another severe respiratory

pathogen. Immediate interventions are imperative to pinpoint at-risk populations in low-income areas and gain insight into the root causes of health inequalities.<sup>16</sup> In conclusion, addressing health inequities in SEA requires a multifaceted approach that acknowledges and tackles socioeconomic disparities, regional variations, and structural drivers of inequality. By prioritizing targeted policies, strengthening health systems, and conducting further research, we can attain health impartiality and warrant that all persons in the region have admittance to quality healthcare services and opportunities for better health outcomes.

#### Contributors

Natarajan Sisubalan and Periyainaina Kesika—conceptualization and preparation of the first draft.

Bhagavathi Sundaram Sivamaruthi—conceptualization, critical inputs, and revising of the draft.

Chaiyavat Chaiyasut—critical inputs and revising the draft.

Finalization of the manuscript—all authors.

#### Data sharing statement

All data were included in the manuscript.

#### Declaration of interests

All authors declare no conflict of interest. None of the authors received any payments for this particular manuscript.

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#### Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.lansea.2024.100455>.

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