

Mortality Trends and Public Health Interventions: A Century of Change in Southeast Asia

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Abstract

Focusing on the impact of public health interventions, this paper examines a century-long change in mortality patterns in Southeast Asia. The investigation attempts to track core mortality indicators and the impact of vaccination drives, sanitation, and healthcare access using historical data from national health databases and contemporary scholarly work. Findings point to a significant decline in mortality due to infectious diseases and in maternal and child health as well. The research aims to assist healthcare policymakers who intend to fortify healthcare systems with evolving public health approaches grounded in historical evidence.

Keywords: Mortality Patterns; Southeast Asia; Public Health Measures; Vaccination; Accessibility of Healthcare; Epidemiology; Sanitation; Historical Perspective.

I. INTRODUCTION

There have been remarkable developments with respect to the health of the population in Southeast Asia in the past hundred years, especially concerning mortality patterns, and this region still remains a point of interest for public health professionals. This is largely associated with the development of the public health infrastructure, political changes within countries, colonial influence, and international collaborations around health. In the early 20th century, some of the most prevalent infectious diseases such as malaria, cholera, tuberculosis had a great toll on life expectancy. Moreover maternal and infant mortality alongside mortality rates underwent a dramatic decline due to the depletion of essential resources like clean water and nutritious food.

The health policies of countries in Southeast Asia including Thailand, Indonesia, Vietnam, and the Philippines changed significantly after they achieved independence. These countries directed public spending to infrastructure related to public health, vaccination, health education, and sanitation. They also formed international partnerships with the WHO and UNICEF which helped these countries during periods of outbreak, wars, and reconstruction.

An example of this is the EPI or Expansion Plan on Immunization which was implemented in most countries in the 1970s and 80s to improve childhood vaccination and reduce mortality. The success of vaccination programs aimed at eradicating polio and measles had a positive impact on lowering mortality rates. Also, maternal and child health programs coupled with family planning services lowered mortality rates for women and children. Regionally, the emergence of non-communicable diseases coupled with urbanization and environmental issues has posed new

problems for the area. While the mortality rate has declined, there are still gaps in rural and urban areas and across different socio-economic classes.

This paper looks at the Southeast Asia region with regards to its mortality rates and assesses the impact of public health measures on these rates. It aims to answer: In what ways have public health policies affected patterns of mortality? What insights can be gleaned for prospective health policies from the records? The analysis spans from 1920 to 2020, providing a century-long perspective on the changes in demography and epidemiology in the region.

II. LITERATURE REVIEW

The most recent study emphasizes how crucial historical and regional context is when examining Southeast Asian health indicators. According to studies, public health initiatives and more general socioeconomic changes have significantly altered the region's mortality patterns. A thorough review of demographic changes is given by Attané et al., (2009), who highlight both broader changes in population structure and decreases in infant and child mortality.

The transitions from infectious to non-communicable diseases (NCDs) and variations in healthcare outcomes and accessibility are documented by Chongsuvivatwong et al., (2011), underscoring the diversity of health systems throughout Southeast Asia. In the same way, Soleman (2020) observes patterns in neonatal mortality throughout the region, showing that although infectious disease mortality has decreased, differences between rural and urban areas still exist.

Environmental factors now significantly influence health outcomes, according to Nurhayati's (2025) analysis of the effects of climate change on public health in Southeast Asia, specifically the increase in tropical diseases. By describing the difficulties faced by health systems in Asia and the Pacific and emphasizing the interaction between infrastructure, policy, and mortality trends, Devasahayam (2005) provides historical context.

Mathers (2017) examines patterns in disease burden and causes of death, demonstrating the epidemiological shift from communicable to lifestyle-related illnesses. Mathers et al., (2018), who present global and regional trends in causes of death from 2000 to 2015, support this viewpoint by highlighting Southeast Asia's leadership in striking a balance between the control of communicable diseases and new NCD challenges.

These studies collectively show how historical, environmental, and policy factors interact intricately to shape health outcomes in Southeast Asia. In order to better understand the region's ongoing health transitions, this paper expands on these findings by offering a diachronic analysis that integrates historical data and current evidence.

III. METHODOLOGY

The current study adopts a mixed-method approach of quantitative analysis of mortality data alongside qualitative evaluation of public health intervention. Mortality profiles for Thailand, Indonesia, Vietnam, and the Philippines were constructed for the period of 1920-2020 using data from the WHO Global Health Observatory, the World Bank, and the national statistical offices (World Bank, 2022). The analysis looked into how certain public health interventions such as

vaccination drives, sanitation works, and maternal care expansion influenced health outcomes, utilizing regression analysis alongside mandatory public health effort frameworks. Other mentioned public health efforts include the measurement of under-five mortality rates, maternal mortality ratio, and other disease-specific mortality rates.

Results from the qualitative analysis came from government publications, briefings courtesy of the WHO, and other healthcare policy documents. These were significant in explaining the later outcomes that came from teaching aids alongside mobile and rural volunteer clinics, helping to shape understanding-targeted health campaigns.

Mortality decline and policy implementation timing were subject to comparison to analyze the change in trends over time, using a systematic timeline-based approach. An example includes marking the early 2000s as the point in Thailand when universal healthcare was rolled out and associating that with a known spike in maternal mortality rates during that time.

Independent data sources were used for multi-sourced cross-referencing to ascertain the veracity of the documented edict trends, which were necessary for data triangulation. Public corners were categorized based feminine conveniences, prevention, and advertisement policies which led to the desired objectives, and each group sufficed with fulfilling the criteria of decline in mortality, increased outreach, and long term maintenance in order to gauge effectiveness.

This particular hybrid approach brings empirical methods alongside contextual comprehension of Southeast Asia's evolution in public health. It enables the identification of health transition markers and outliers along with evidence-based policy needs.

IV. RESULTS AND DISCUSSION

Aligned with the exposé, my primary concern is the accessibility of longitudinal health data for Southeast Asia's countries specifically tracking under five children's mortality rates. From my observation in the past six decades, region-all cumulative death figures underscored a steady decrease in under 5 child mortality rate. As an example, the ratio dropped from 25 to mere 4 deaths per one thousand live births over that period in the region. This decline can be tangibly attributed to massive public health strategies that were adopted by the region through encompassing primary health center's inclusion and extensive immunization drives towards the latter part of the period.

Commensurately with growing donation driven maternal child health intervention programs sustained post 1980 alongside proliferation of clean drinking wate—and MD nourishments in the country, steep further drops in mortality ratio become perceptible.

Other than the drop in innate mortality metrics sterling the child mortality figure there was also a considerable decline in maternal death ratios. Take for example Thailand whose MMR dipped from 400 for every 100,000 live births in 1960 to an astounding 30 in 2020 courtesy advancing reproductive health policies. These figures profoundly depict how sustained public health efforts lead to inch increase in the survival rate plummeting the mortality paradox. That being said, deeper concern for many of these countries rest in the unchecked accessibility to non communicable disease along with the active obstacle course nonuniform distribution of healthcare into the mix pose.

Table 1: Key Public Health Interventions and Associated Outcomes

| Intervention | Country Example | Impact on Mortality |
|-------------------------|-----------------|--|
| Expanded immunization | Vietnam | 80% reduction in child mortality |
| Clean water initiatives | Indonesia | Drop in waterborne diseases |
| Maternal health clinics | Thailand | Significant drop in maternal mortality |
| Anti-malaria programs | Philippines | Eradication in several provinces |

Table 2: Mortality Indicators Across Selected Countries (2020)

| Country | Under-5 Mortality Rate | Maternal Mortality Ratio | Life Expectancy |
|-------------|------------------------|--------------------------|-----------------|
| Thailand | 6 per 1,000 | 30 per 100,000 | 77 years |
| Indonesia | 19 per 1,000 | 177 per 100,000 | 72 years |
| Vietnam | 14 per 1,000 | 124 per 100,000 | 75 years |
| Philippines | 27 per 1,000 | 121 per 100,000 | 71 years |

V. CONCLUSION

Southeast Asia’s public health initiatives have significantly reduced mortality over the past century. Targeted work on infectious disease control, as well as maternal and child healthcare, funded by public health initiatives, has geared the region towards a more favorable demographic outlook. The success underscores the immense value in establishing healthcare systems, formulating policies backed by data, and mobilizing community action. With the emergence of contemporary health threats like climate change, adaptive strategies rooted in proven effective past frameworks will be pivotal in preserving health equity and sustainability for all citizens.

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