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Assessment of Non-Communicable Disease Indicators in South-East Asian Region Countries

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ABSTRACT

Background: NCDs are the leading cause of mortality in the WHO SEAR, accounting for nearly 55% of all deaths. Despite regional commitments and WHO-recommended interventions, the extent of implementation of NCD policies and trends in risk factors across SEAR countries remains inadequately understood. **Objectives:** To assess the implementation of WHO-NCD progress monitoring indicators across SEAR countries and to analyse trends and patterns in major behavioural and metabolic NCD risk factors. **Methods:** A document analysis was conducted using WHO NCD Progress Monitor reports (2015, 2017, 2020, 2022, and 2025), WHO Global Health Observatory datasets, and WHO MPOWER tobacco control indicators. Policy implementation was assessed across governance, surveillance, risk factor reduction, and health system response domains. Trends in tobacco use, alcohol consumption, physical inactivity, obesity, hypertension, cholesterol, and diabetes were analysed using available country-level data. **Results:** NCD policy implementation improved across SEAR countries between 2015 and 2025, although progress varied considerably among countries. Thailand and Sri Lanka achieved the highest implementation scores, while Bhutan and North Korea demonstrated comparatively lower progress. Tobacco control measures contributed to declining smoking prevalence in most countries, whereas Indonesia showed increasing tobacco use. Obesity, diabetes, hypertension, and physical inactivity increased across several countries despite gradual policy improvements. Progress in alcohol control, unhealthy diet policies, mortality surveillance, and integrated health system responses remained inconsistent, highlighting persistent implementation gaps. **Conclusion:** SEAR countries have made measurable progress in implementing NCD policies; however, substantial disparities remain in policy execution, surveillance systems, and risk factor control. Strengthening multisectoral collaboration, improving routine health information systems, expanding evidence-based prevention strategies, and reinforcing primary healthcare services are essential to accelerate progress towards regional and global NCD targets.

Keywords: Non-communicable diseases; South-East Asia Region; WHO NCD Progress Monitor; Policy implementation; Risk factors; Global Health Observatory.

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Introduction

Non-communicable diseases (NCDs), such as cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases, significantly impact health and socio-economic development in the South-East Asian Region (SEAR). NCDs account for 55% of all deaths in the region, equating to 9.5 million individuals, with nearly half of these deaths occurring prematurely, before age 70 years.[1]

NCDs are largely preventable by addressing common risk factors such as tobacco use, harmful alcohol consumption, physical inactivity, and unhealthy diets [2, 3]. Metabolic risk factors such as raised blood pressure, elevated blood glucose, abnormal blood lipids often linked to unhealthy lifestyles can lead to cardiovascular disease, the main cause of premature NCD mortality[1]. The SEAR faces rapid demographic changes, urbanisation, lifestyle shifts, environmental risk exposures, and unequal access to preventive health services, contributing to rising NCD prevalence[3, 4]. Increased tobacco and alcohol use, along with limited healthcare access, lead to earlier morbidity and mortality[1]. Vulnerable populations are particularly affected, leading to income loss, reduced physical capacity, and high out-of-pocket healthcare expenditures[3, 4], thereby hindering poverty reduction initiatives.[1]

Recognising this burden, the World Health Organization (WHO) and member states in SEAR have developed regional and national frameworks, including the Action Plan for the Prevention and Control of NCDs in South-East Asia 2013–2020, which provided a roadmap for action, extended to 2030. This plan aligns with the global NCD agenda. It aims to reduce premature NCD mortality while promoting health and well-being in the region (World Health Organization Regional Office for South-East Asia, 2022) [4]. In May 2015, the WHO issued a Technical Note outlining its plan to report to the United Nations General Assembly (UNGA) in 2017 on national commitments under the 2011 UN Political Declaration and the 2014 Outcome Document on NCDs[5]. This Note was updated in September 2017 to align with the new WHO 'Best buys' for NCD prevention, endorsed by the World Health Assembly (World Health Organization, 2017)[6]. In 2024, it was further revised to include a modified set of eleven progress monitoring indicators for reporting to the UN General Assembly on country progress on national commitments [7, 8]. The WHO Global Health Observatory (GHO)[9] is a comprehensive repository that offers over 1,000 health indicators across 194 Member States. The GHO provides critical information on NCDs and related risk factors, supporting comparative analysis of trends and progress among South-East Asian countries [10].

Despite policy initiatives, the adoption and implementation of integrated NCD interventions in SEAR remain uncertain due to challenges such as diverse political systems, economic disparities, and cultural influences on health behaviours[9]. Additionally, the COVID-19 pandemic has disrupted health services, further complicating efforts to prevent and control NCDs in the region [11].

The study aims to explore how effectively and to what extent SEAR has implemented integrated approaches to address multiple NCD risk factors and the trends and patterns associated with various NCD risk factors across SEAR. This research is timely due to the increasing recognition of NCDs as a major global health threat, as highlighted by the UN Sustainable Development Goals (SDGs), which aim to reduce premature mortality from NCDs by one-third by 2030. [12, 13]

The study's significance lies in its potential to guide evidence-based policymaking and optimize resource allocation for NCD prevention. By identifying successful policy implementations, challenges, and emerging trends in risk factors, it can inform targeted interventions and policy refinement. The findings will contribute to identifying gaps and providing actionable insights for policymakers, health professionals, and researchers, supporting improved implementation and public health outcomes.

Objectives

1. Analyse the implementation scores of NCD policies by using the WHO NCD progress monitor reports in South-East Asian countries to understand their effectiveness and coverage.
2. Analyse trends and patterns in NCD risk factors to identify emerging challenges and opportunities for targeted interventions.

Methodology

The document analysis methodology was adopted to assess the implementation of NCD policies and trends and patterns in NCD risk factors within the WHO SEAR countries.

For this document analysis, the following data sources were utilized. The WHO, NCD Progress Monitor reports of 2015, 2017, 2020, 2022, and 2025. WHO GHO data on NCD risk factors were included at five-year intervals between 2000 and 2020, with additional data from 2021, 2022, and 2025, with projections for tobacco use up to 2030 (estimated). Information on hypertension and cholesterol was included up to 2018 or 2019. And data from the WHO Monitor on tobacco use and prevention policies, protect people from tobacco smoke, offer help to quit tobacco use, warn about the dangers of tobacco, enforce bans on tobacco advertising, promotion and sponsorship, and raise taxes on tobacco (MPOWER) tobacco control indicators were used intermittently between 2007 and 2022 across SEAR.

Information related to the implementation of NCD policies was obtained from the WHO NCD Progress Monitor reports, which use standardised indicators to assess national progress in NCD prevention and control across four domains: governance, surveillance, risk factor reduction, and health system response. These include setting national NCD targets, establishing a reliable mortality data system, conducting regular risk factor surveys, developing a national multisectoral NCD strategy or action plans, and enforcing policies on tobacco, alcohol, diet, physical activity, and NCD management, including essential medicines and HPV vaccination. Each indicator was rated as fully achieved, partially achieved, or not achieved, based on country-reported data. This process involved a detailed review of each report to identify relevant policies and record their implementation status for each country and reporting year. Country-level implementation of effective tobacco demand-reduction interventions was assessed using the WHO MPOWER tobacco control indicators. NCD risk factors data from GHO included both behavioural and metabolic risk factors such as tobacco use, alcohol consumption, physical inactivity, obesity, hypertension, cholesterol, and diabetes. The analysis involved categorising the data, identifying patterns and trends, and critically evaluating the content to understand the effectiveness and coverage of NCD policy implementation, as well as trends and patterns in NCD risk factors to identify emerging challenges and opportunities for targeted interventions in SEAR.

Results

***NCD policy implementation progress*:** SEAR demonstrated measurable progress in implementing national NCD policies between 2015-2025. Aggregate implementation scores across 11 WHO NCD progress monitoring indicators improved in most countries over the decade, with Thailand (19) and Sri Lanka (17.5) achieving the highest scores, indicating strong policy implementation, while North Korea (6.5) and Bhutan (7) had the lowest, reflecting weaker implementation; other countries scored between 8.5 and 13.5, showing moderate progress.

South-East Asian countries demonstrated notable improvements in their NCD policy implementation scores from 2022 to 2025. Sri Lanka (+5.5) and Indonesia (+4.5) recorded the largest improvements, followed by Thailand and Timor-Leste (+3 each). India, Nepal, Bangladesh, and Myanmar showed moderate progress, while Bhutan and North Korea remained unchanged, and Maldives declined slightly (-1). The WHO NCD Progress Monitor 2025 has expanded its indicators for reducing unhealthy diets beyond salt/sodium and trans fats to include food reformulation, front-of-pack labelling, public food policies, and mass media campaigns on healthy diets. It also introduces new indicators like essential medicines for chronic respiratory diseases and Human Papillomavirus (HPV) vaccination programs, indicating that the observed progress may stem from a broader framework rather than policy changes alone.

Implementation Score of SEAR Countries (2015-2025)

***National NCD targets, mortality data and risk factors surveys*:** By 2025, most SEAR countries, particularly India, Sri Lanka, Thailand, and Maldives, had fully established time-bound national NCD targets aligned with WHO guidance, while countries like Bangladesh and Indonesia showed partial or inconsistent implementation. Routine registration systems for

mortality data remained weak across most countries in the region, with Thailand being the only country to achieve full implementation. Sri Lanka and the Maldives showed modest improvements, indicating persistent gaps in mortality surveillance despite policy progress in other domains. Risk factor surveys were done in several countries with a pattern of sustained partial-to-full implementation (Bhutan, Nepal, and India showed consistent activity at 0.5–1 across years). However, uptake was not universal, and many countries remained at partial implementation. The existence of operational multisectoral national strategies or action plans integrating major NCDs and their risk factors showed notable improvement in several countries, while Bhutan and Indonesia displayed variability or limited progress in implementation.

Figure-1: NCD policy Implementation scores of SEAR Countries (2015-2025)

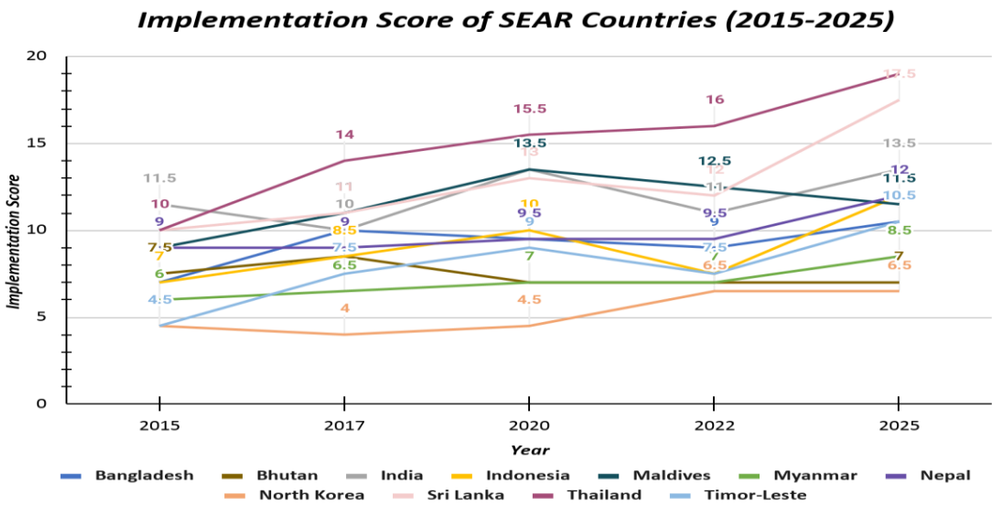
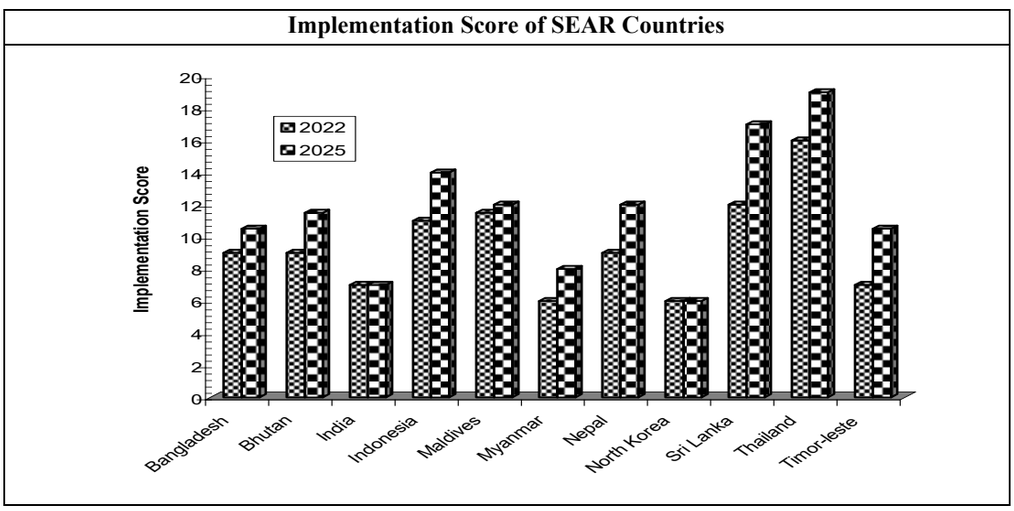
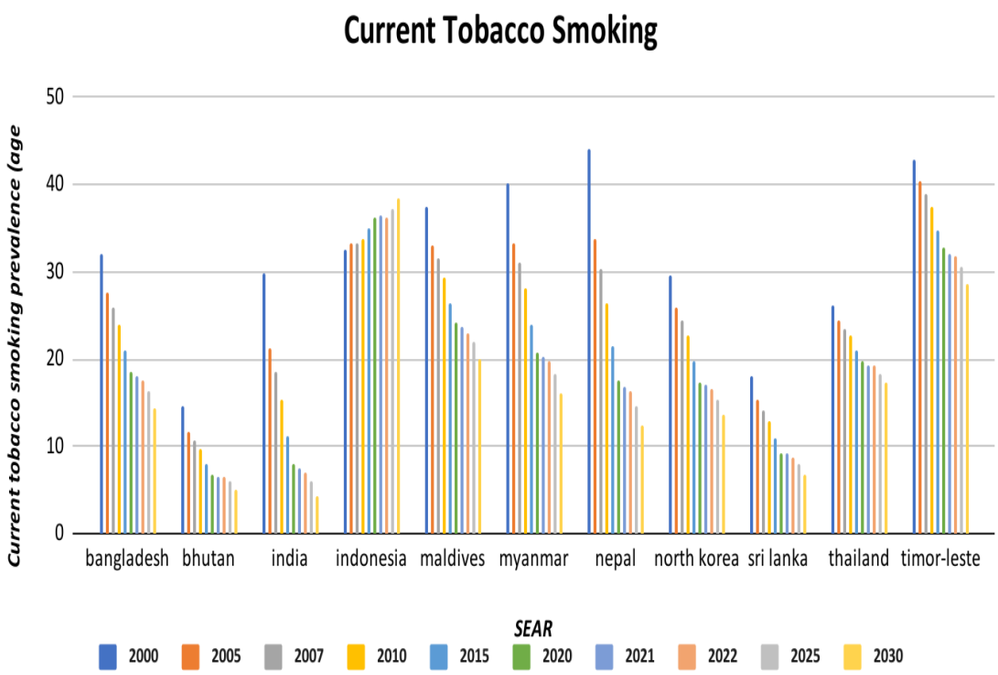


Figure-2: NCD Policy Implementation Score of SEAR Countries



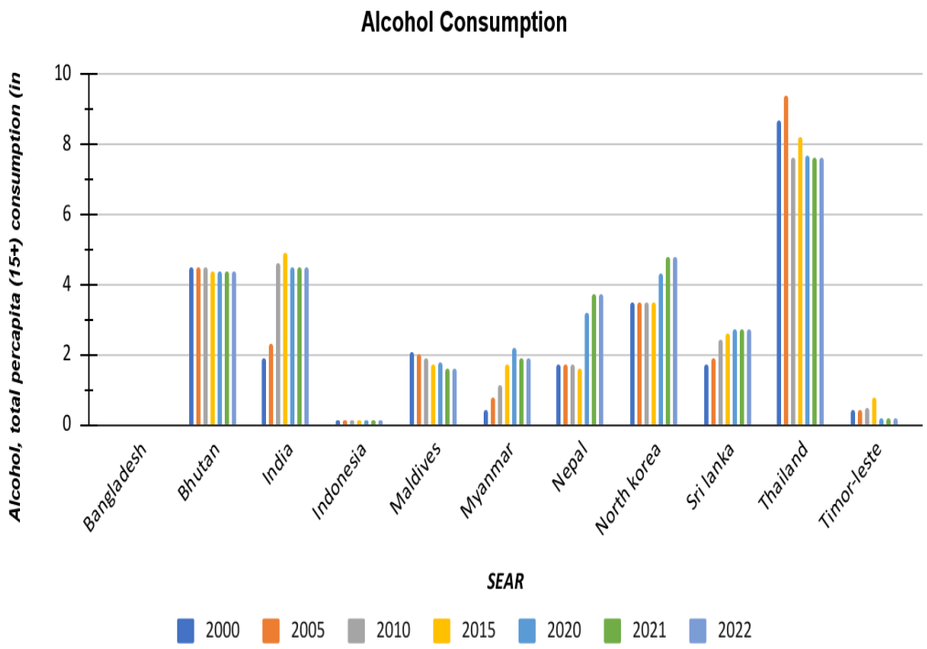
***Harmful use of tobacco and alcohol demand reduction measures*:** Tobacco control progress was significant but uneven. Efforts to reduce tobacco affordability through increased excise taxes and prices improved in Thailand by 2025, while Bangladesh, India, Indonesia, and Sri Lanka showed limited progress. Smoke-free legislation for indoor public places showed broad uptake in Nepal and Thailand, with many countries at partial implementation. Plain packaging/large graphic health warnings were widely adopted in several countries by 2025. Comprehensive bans on advertising, promotion and sponsorship were variable; Nepal and Maldives reflected stronger action, while others remained at partial or no implementation. Mass-media tobacco campaigns showed intermittent activity across countries; Thailand and Timor-Leste demonstrated stronger, sustained activity by 2025. According to GHO data from 2000 to 2025, the prevalence of tobacco smoking declined across SEAR, except Indonesia, where rates rose from 32.6% in 2000 to 38.4% in 2030. The largest reductions occurred in India (29.8% to 4.3%) and Nepal (44.0% to 12.5%), with steady declines also in Bhutan (14.5% to 5.1%) and Sri Lanka (18.1% to 6.8%), reflecting strong tobacco control efforts. Thailand, Sri Lanka, and India led in MPOWER implementation, while Bangladesh, Nepal, Myanmar, and Maldives made moderate progress. Bhutan, North Korea, and Timor-Leste lagged, particularly in taxation, monitoring, and mass media campaigns, highlighting areas needing further focus for comprehensive tobacco control.

Figure-3: Tobacco Smoking Prevalence



Regulatory actions to restrict physical availability of alcohol and comprehensive advertising restrictions were implemented to varying extents. Thailand and Maldives consistently scored high across alcohol control indicators. Pricing policies such as excise tax increases on alcoholic beverages were well established in some countries (Indonesia, Maldives, Nepal) by 2025, while implementation remained incomplete elsewhere.

Figure-4: Alcohol Consumption

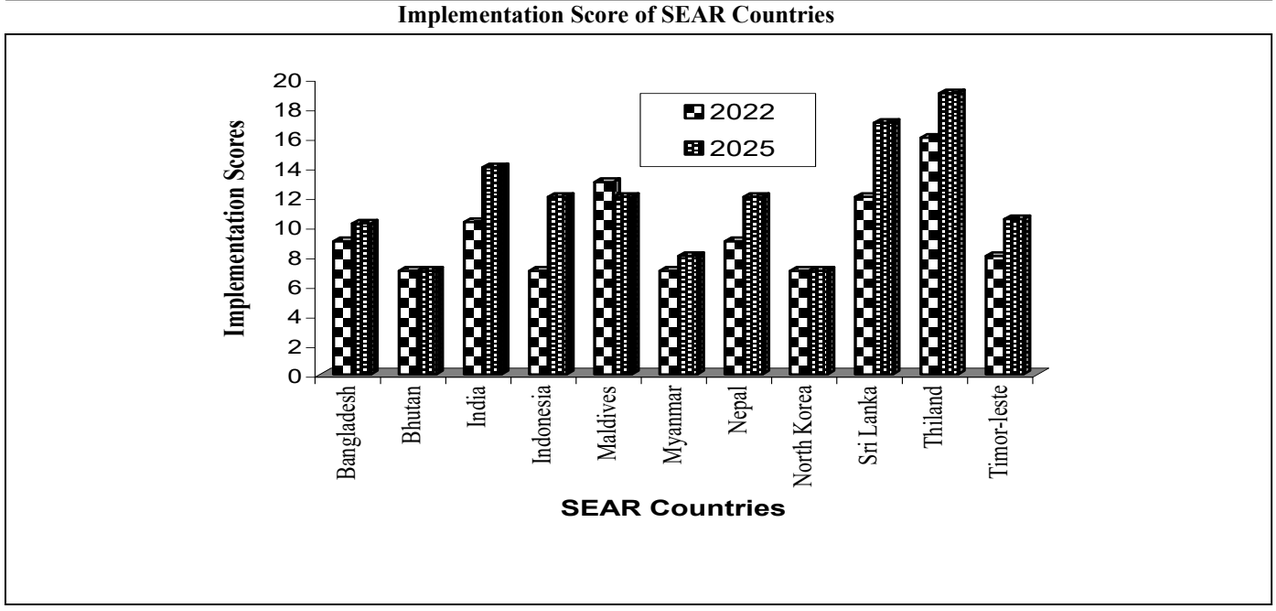


According to GHO data, alcohol consumption remained low in most countries, particularly Bangladesh and Indonesia, where it stayed near zero. Thailand maintained the highest levels (8.7 L in 2000 to 7.6 L in 2022), followed by Bhutan (4.5 L), North Korea (rising from 3.5 L in 2000 to 4.8 L in 2022) and India (rising from 1.9 L in 2000 to 4.5 L in 2022), suggesting cultural and regulatory influences on consumption patterns.

***Unhealthy diet reduction measures*:** Progress has been made in reducing unhealthy diets across South-East Asian countries from 2015 to 2025. The WHO NCD Progress Monitor 2025 expanded its indicators, revealing substantial variation in implementation. By 2025, food reformulation policies were fully implemented in India, Bangladesh, Nepal, and Thailand, and front-of-pack labelling policies were adopted in Indonesia, Sri Lanka, and Thailand. Public food procurement and service policies were introduced in India, Indonesia, Sri Lanka, and Thailand, but it was not implemented elsewhere. Marketing restrictions to children were maintained mainly in India, Sri Lanka, and Thailand, whereas restrictions on the marketing of breast-milk substitutes remained strong in India, Bangladesh, and Maldives. Mass media campaigns on healthy diets were implemented in India, Indonesia, Maldives, Myanmar, North Korea, Sri Lanka, and Thailand. Overall, policy adoption remained uneven, with only a few countries achieving consistent progress across multiple domains. According to GHO data, adult obesity increased steadily across all countries, with the highest rise in the Maldives (6.2%–17.3%), followed by Thailand (5.7%–15.4%), Bhutan (3.4%–12.2%), and Indonesia (2.6%–11.2%). Similar trends were seen among children, notably in Indonesia (1.1%–8.5%) and the Maldives (2.2%–11.6%), reflecting a growing double burden of malnutrition and lifestyle risks.

***Progress in Physical Activity Promotion and NCD Management*:** Between 2015 and 2025, progress in promoting physical activity and managing major NCDs across SEAR was uneven. India consistently implemented public education and awareness campaigns on physical activity, while other countries showed partial, intermittent, or declining adoption.

Figure-5: Insufficient Physical Activities among adults



As per GHO, prevalence of insufficient physical activity increased notably in India (22.3% to 49.4%), Sri Lanka (18.3% to 37.2%), and Thailand (15.9% to 28.9%), indicating a growing sedentary lifestyle associated with urbanisation and occupational shifts. In contrast, Nepal and Bhutan reported declining inactivity levels, from 11.5% to 8.2% and 12.5% to 9.9% respectively, possibly reflecting stronger community engagement in physical work and health promotion programmes. Guidelines for the management of cancer, cardiovascular diseases, diabetes, and chronic respiratory diseases were fully adopted in India, Bhutan, Indonesia, and Thailand with gradual improvements in Nepal, Sri Lanka, Myanmar, and Timor-Leste. Before its exclusion in 2025, drug therapy and counselling to prevent heart attacks and strokes had been implemented in India, North Korea, Maldives, Sri Lanka, and Thailand at various time points. Essential medicines and technologies for chronic respiratory diseases, introduced in 2025, achieved full implementation in Maldives, Nepal, North Korea, Sri Lanka, and Timor-Leste. HPV vaccination programmes, an indicator introduced in 2025, were fully implemented in Bhutan. Overall, adoption of interventions remained inconsistent, highlighting gaps in policy implementation and program scale-up.

***Trends in Hypertension, Cholesterol, and Diabetes Prevalence Across SEAR Countries*:** Raised blood pressure remained high, particularly in Bhutan (38.1% – 43.4%) and Indonesia (31.6%-40.3%). Cholesterol levels stayed stable, except for slight increases in Indonesia and Myanmar (up to 4.8 mmol/L), while Thailand recorded the highest average (5.0 mmol/L). Diabetes showed the steepest rise, especially in Sri Lanka (9.7%-25.1%), India (13.7%-22.6%), and Bangladesh (11.9%-17.9%), highlighting an escalating metabolic burden across the region.

Discussion

The analysis of the implementation of NCD policies across the WHO South-East Asia Region (SEAR) between 2015 and 2025 reveals steady yet uneven progress, reflecting broader global trends identified in existing literature.[1, 14] Countries such as Thailand and Sri Lanka demonstrated strong policy coherence and multisectoral coordination, leading to higher implementation scores, while Bhutan and North Korea lagged.

These differences align with findings from Buse, Tanaka and Hawkes, 2017,[15] who emphasize that political commitment and inter-sectoral collaboration are key determinants of successful NCD policy implementation. Improvements in countries like Indonesia and Sri Lanka between 2022 and 2025 suggest that expanding policy frameworks, particularly those including new indicators such as essential medicines for chronic respiratory diseases and HPV vaccination, have been positively influenced. However, gaps remain between policy formulation and effective execution, a challenge well documented in the literature on NCD governance in LMICs. [16]

Analysis of national NCD targets and the National Integrated NCD Policy/Strategy/Action Plan indicates that equivalent gains have not matched progress in policy design in data systems. While most SEAR countries have now aligned with WHO's National NCD targets, surveillance gaps remain a persistent limitation. Thailand's complete mortality registration represents best practice, yet most other nations struggle with incomplete reporting, affecting data reliability and policy responsiveness. This mirrors global concerns raised by Alwan et al., (2010)[17], who note that the absence of robust civil registration and vital statistics systems undermines effective monitoring of NCD trends. The findings reinforce (NCD profiles, 2025)[18] observations that even with national targets in place, resource limitations and fragmented data infrastructure hinder the region's ability to generate actionable evidence for decision-making. Strengthening surveillance and routine monitoring, therefore, remains essential to translating policy commitments into measurable health outcomes.

Trends in tobacco and alcohol control across the SEAR demonstrate both successes and ongoing challenges. The implementation of MPOWER strategies has significantly decreased tobacco use in countries such as India, Nepal, and Thailand, verifying the effectiveness of comprehensive tobacco control measures [19, 20], which highlight that sustained tobacco taxation, smoke-free laws, and graphic health warnings, have contributed to declining smoking rates. However, Indonesia remains an outlier, with rising tobacco use (32.6% in 2000 to 38.4% in 2030, projected), suggesting persistent socio-cultural and regulatory challenges. Alcohol control policies, though improving in Thailand and the Maldives, remain weak in many countries due to inconsistent enforcement and sociocultural norms influencing consumption patterns [21]. These results reflect the consensus in the literature that NCD behavioural risk factors in LMICs are driven not only by policy gaps but also by socioeconomic transitions, commercial determinants, and inadequate public education.

Progress in addressing unhealthy diets and physical inactivity reveals emerging policy developments but also critical data limitations. The 2025 WHO NCD Progress Monitor expanded its focus on measures of unhealthy diet. Despite this, the GHO dataset still lacks indicators under the 'Unhealthy Diet', limiting the monitoring of regional dietary trends and policy responses to rising obesity [22, 23]. Rising obesity prevalence in countries such as the Maldives, Indonesia, and Thailand reflects the dual burden of under- and over nutrition, driven by urbanization, sedentary lifestyles, and processed food consumption. The literature highlights the importance of fiscal measures, marketing restrictions, and public awareness to reverse these dietary trends.[24] Similarly, rising levels of physical inactivity in India, Sri Lanka, and Thailand[25], underscore the need for integrated, multisectoral approaches promoting active living. Overall, while countries are advancing in behavioural risk control, metabolic risks linked to diet and urban lifestyles demand urgent attention. [24, 26]

Finally, evaluation of NCD management and treatment indicators highlights both achievements and notable regressions. While adoption of guidelines for major NCDs such as diabetes, cardiovascular diseases, and cancer improved in several countries, the exclusion of "drug therapy and counselling to prevent heart attacks and strokes" from the 2025 Progress Monitor Report represents a significant policy omission. Given that secondary prevention through pharmacological and behavioural counselling remains one of the most cost-effective interventions for reducing premature mortality[27]; (WHO package of essential non-communicable (PEN) disease interventions for primary health care, 2020)[28], its removal weakens the comprehensiveness of policy monitoring. Concurrently, the rising prevalence of hypertension and diabetes especially in Sri Lanka, India, and Bangladesh underscores the urgent need for strengthened primary care services and early detection.[29] These findings confirm that although policy expansion has taken place, the implementation and delivery of services remain fragmented. This situation necessitates a

renewed focus on integrating prevention, treatment, and community-level engagement to address the increasing burden of NCDs effectively.

Limitations: This study is limited by its reliance on secondary data from the WHO NCD Progress Monitor (2015–2025) and related global datasets. Data gaps particularly the absence of standardised indicators under the 'Unhealthy Diet' category restrict comprehensive assessment of dietary trends and cross-country comparisons. Incomplete mortality registration and variable national reporting systems further affect data accuracy and consistency. Moreover, the Progress Monitor primarily measures the existence of policies rather than their quality of implementation or population-level impact, which may lead to overestimation of progress. The cross-sectional nature of the data also limits causal interpretation of policy effectiveness.

Conclusion

Between 2015 and 2025, the WHO South-East Asia Region showed steady but uneven progress in implementing NCD policies. Countries such as Thailand and Sri Lanka advanced through strong policy coherence and multisectoral coordination, while others lagged due to weak systems and limited data capacity. Successes in tobacco control contrast with slower progress in alcohol regulation, unhealthy diet monitoring, and physical activity promotion. The 2025 Progress Monitor's expanded focus on diet-related measures represents progress, yet persistent surveillance and implementation gaps hinder effective response. Rising obesity, diabetes, and hypertension highlight the urgent need for stronger primary care, integrated prevention, and improved data systems to achieve regional NCD targets.

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