

Population Dynamics in South Asia: A Comparative Analysis of Seven Countries, 2016 - 2024***¹K. Nishanthi; ¹H. H. C. U. M. Perera; ¹D. M. S. Jeewamali****¹University of Kelaniya, Sri Lanka****DOI: <http://doi.org/10.5281/zenodo.23243469>****Review: 30/08/2026****Acceptance: 04/09/2026****Publication: 08/10/2026**

Abstract: Population change remains one of the most consequential forces shaping economic development, social welfare, and environmental sustainability across Asia. This study presents a comparative analysis of population dynamics and population policy performance in seven South Asian countries, including India, Bangladesh, Pakistan, Sri Lanka, Bhutan, Maldives, and Nepal, over the period 2016 to 2024. Using a mixed-methods design that combines secondary demographic data (total population, birth and death rates, infant mortality, and total fertility rate) with a qualitative review of national population-policy frameworks, the study examines how differing demographic trajectories have shaped, and been shaped by, policy responses. GIS-based choropleth mapping is used to visualize the spatial distribution of population change across the region for 2016, 2020, and 2024. The results confirm that South Asia is not demographically uniform. Pakistan continues to record high fertility (TFR of 3.6 in 2024) and rapid population growth, whereas India, Bangladesh, and Nepal are progressing through a substantial demographic transition marked by steady declines in both fertility and mortality. Sri Lanka, Bhutan, and Maldives, by contrast, have already entered a post-transition phase, with below-replacement fertility and the early signs of population ageing. Because these patterns differ so widely across the region, a single, uniform population policy would not work well for all the countries. Each country need a specific policy for demographic transition. The study concludes with a set of country-specific and regional policy recommendations built around a human-centered approach to population management.

Keywords: Population Dynamics; Demographic Transition; South Asia; Total Fertility Rate; Population Policy; Comparative Study

1. Introduction

Population is the center of human development planning, shaping social, economic, and environmental outcomes alike. In simple terms, it is the number of people living in a given area at a given time, and that number keeps shifting as fertility, mortality, and migration play out (Tuttle, 2026). These shifts in size and structure matter for how resources are allocated, how infrastructure is built, and how economies and social policies develop.

The United Nations Department of Economic and Social Affairs (2024) estimated the global population at roughly 8.2 billion in 2024, with a projected peak of around 10.3 billion by the mid-2080s. South Asia plays a major role in this change. It is home to almost 2 billion people spread across seven major countries; the region is still working through complex demographic transitions, with fertility decline, population growth, and changing age structures all proceeding at different paces.

Even though fertility has declined overall across Asia, the picture varies considerably from one part of the continent to another. In 2024, the region's average total fertility rate (TFR) stood at around 1.8 births per woman, just below the replacement level of 2., but this average hides large sub-regional gaps, ranging from a TFR of about 1.0 in East Asia to roughly 3.2 in Central Asia (Population Reference Bureau, 2024).

South Asia shows the same kind of divergence internally, Bhutan's TFR has fallen to around 1.5, while Pakistan's remains considerably higher at approximately 3.6. Such contrasts show the differences in socio-economic development, population policy, cultural norms, access to reproductive healthcare, and the extent of female education and empowerment (Population Reference Bureau, 2024).

Population changes affect not only the number of people but also they influence economic development, the environment, food security, and social stability. Population growth causes strain on natural resources, demand for education and healthcare issues, less job opportunities, and the environment issues. On the other hand, countries with declining fertility rates and ageing populations face different challenges, such as a smaller working-age population, labour shortages, higher dependency levels, and increasing pressure on social protection systems. South Asia is unique because both situations exist within the region.

Therefore, population policies should be developed according to the specific needs and conditions of each country rather than applying one common approach to the entire region. Although demographic change has been widely studied around the world, there is still a significant gap in understanding how effective population policies are in South Asia. More comparative, evidence-based, and people-centred research is needed to assess these policies across the region.

Existing studies have largely examined demographic transition at the national or regional level, but limited attention has been paid to systematically comparing how population policies have influenced demographic outcomes across countries with diverse socio-economic, cultural, and institutional contexts.

Effective population management requires policies that integrate environmental sustainability, economic development, and social well-being. (Poh Seng, Rao, & Shantakumar, 2023). Thus, evaluating population policy through a human-centred lens is essential to understanding both achievements and its limitations.

In response to this gap, the study undertakes a comparative analysis of population dynamics in South Asian countries, focusing on changes in total population, fertility, and mortality between 2016 and 2024. It further examines the effectiveness of national population policies by reviewing country-specific interventions and demographic outcomes to develop evidence-based recommendations that support sustainable, human-centred demographic management across the region.

2. Study Area

This study focuses on seven South Asian countries: India, Bangladesh, Pakistan, Sri Lanka, Bhutan, Maldives, and Nepal. Collectively, these countries represent the diverse demographic characteristics of South Asia, ranging from highly populated countries such as Pakistan, with approximately 240.5 million people, to small-is-land and mountain states such as the Maldives and Bhutan, each with a population of less than one million.

This diversity provides an opportunity to examine different demographic challenges and policy responses within a single, geographically connected region. The geographical distribution of the study area is shown in Figure 1.

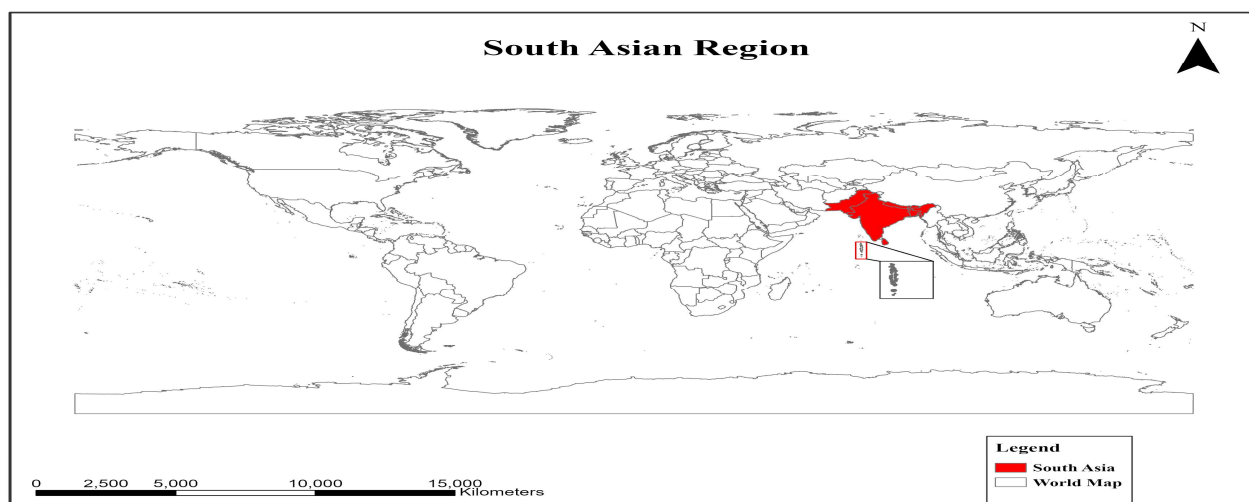


Figure 1: Study Area — South Asian Region (Source: Authors' compilation)

3. Research Method:

This study adopts a mixed-methods approach that integrates quantitative and qualitative methods. The qualitative method focuses on demographic analysis and qualitative data on population policy. The comparative study is used to discuss about the population trend in seven countries and its population policies. The comparative approach helps to identify the similarities and differences of population and policy factors that influence population change in the seven selected South Asian countries. By combining statistical analysis with an examination of population policies, the study provides a clear understanding of how different countries have responded to demographic changes under different social, economic, and cultural conditions.

3.1 Data Collection: The quantitative data includes the total population, births per 1,000 population, deaths per 1,000 population, infant mortality rate, and total fertility rate (TFR) for the years 2016, 2020, and 2024 as secondary data.. Data was compiled from internationally recognized demographic databases, principally the Population Reference Bureau, together with United Nations DESA, Worldometer, and Macrotrends. The qualitative data were obtained from national population-policy documents, academic publications, and reports from international organisations, including the Report on Sri Lankan Population Policies (Ancient Times to Present), UNFPA country reports, World Bank analyses of migration and demographic change, and scholarly research on population transition in Bhutan and other South Asian countries.

3.2 Data Analysis and Mapping: Demographic indicators were compared across countries and over time using descriptive statistical comparison (absolute values and percentage change) for the three reference years. In addition, geographic variation in population distribution among the selected countries for 2016, 2020, and 2024 was visualized through GIS-based choropleth mapping to illustrate the spatial pattern of demographic change across South Asia. This combination of quantitative comparison, spatial visualization, and qualitative policy review allows the study to link measured demographic outcomes to the policy environment of each country.

4. Results and Discussion

4.1 Population Distribution across South Asia: The population distribution is shown in Figure 2, presents population distribution across South Asia for 2016, 2020, and 2024. These maps illustrate both the continued dominance of India as the region's demographic center and the divergence in growth trajectories among the smaller nations.

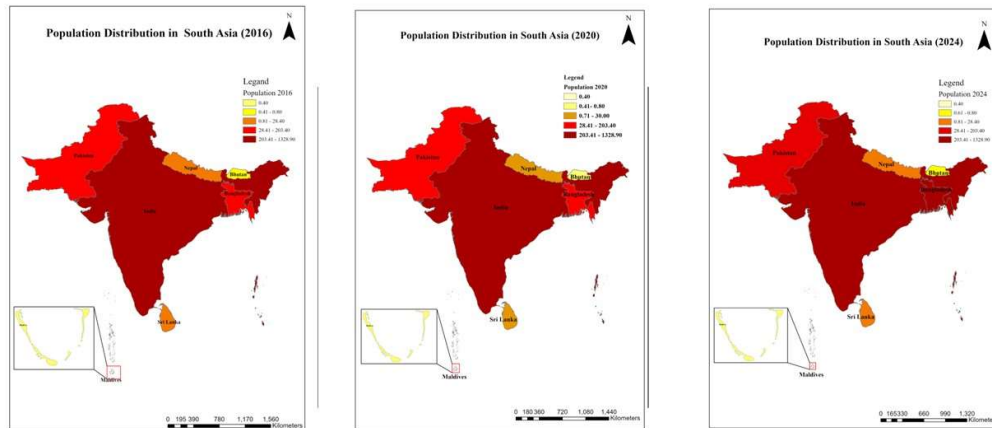


Figure 2: Population Distribution in South Asia, 2016, 2020 and 2024 (Source: Authors' GIS compilation)

The maps show that, between 2016 and 2024, Pakistan moved into a deeper population-density category while India remained in the highest tier throughout. Bhutan remained in the lowest category across all three years, consistent with its demographic stability. The 2024 map also shows a clear change in Nepal, reflecting its gradual and steady population growth and improvements in demographic conditions.

4.2 Population and Fertility Trends: The demographic characteristics of the seven selected South Asian countries are examined, focusing on the years 2016, 2020, and 2024, to identify changes and variations in population dynamics over time. Table 1 presents the complete demographic dataset for the seven countries across the three reference years.

Table 1: Population Dynamics in South Asia, 2016 - 2024

Indicator / Year	India	Bangladesh	Pakistan	Sri Lanka	Bhutan	Maldives	Nepal
Total Population (millions)							
2016	1328.9	162.9	203.4	21.2	0.8	0.4	28.4
2020	1400.1	169.8	220.9	21.9	0.7	0.5	30
2024	1441.7	173.6	243.5	21.9	0.8	0.6	30
Births per 1,000 population							
2016	22	20	30	16	19	18	22
2020	20	21	28	15	16	19	21
2024	16	20	28	14	13	10	20
Deaths per 1,000 population							
2016	7	5	7	6	6	3	7
2020	6	5	6	6	7	4	7
2024	7	5	7	7	6	3	7

Infant Mortality Rate (per 1,000 live births)							
2016	40	38	67	8	44	8	33
2020	33	34	62	9	15	7	34
2024	23	23	49	7	19	10	28
Total Fertility Rate (children per woman)							
2016	2.3	2.3	3.7	2.1	2.1	2.5	2.3
2020	2.2	2.3	3.6	2.1	1.7	2.1	2.2
2024	2	2.2	3.6	2	1.5	1.7	2.1

Source: Compiled from national statistics and international demographic databases (UN DESA, PRB, Worldometer, Macrotrends, 2024 – 2025).

Table 1 illustrates the variation in population dynamics among South Asian countries between 2016 and 2024, particularly in population size, fertility, birth rates, and mortality. Overall, the region shows a transition toward lower fertility and birth rates, although the pace of this transition differs considerably across countries.

India remained the most populous country in South Asia, increasing from 1,328.9 million in 2016 to 1,441.7 million in 2024. Pakistan recorded the second-largest absolute increase, from 203.4 million to 243.5 million, an increase of approximately 19.7%, substantially faster than any other country in the region. Bangladesh grew more slowly, from 162.9 million to 173.6 million (about 6.6%), while Sri Lanka's population remained relatively stable at approximately 21.9 million, and Nepal showed only limited growth between 2020 and 2024. The comparatively slow growth in Sri Lanka, Bhutan, and the Maldives indicates a more advanced stage of demographic transition than in the rapidly expanding countries.

A clear decline in birth rates is evident across most of the region. India's birth rate fell from 22 to 16 per 1,000 population between 2016 and 2024 (a decline of about 27%), while Bhutan recorded an even larger relative reduction, from 19 to 13 (31.6%), and Maldives declined from 18 to 10 (44.4%), the largest proportional decline among the seven countries. Sri Lanka's birth rate eased from 16 to 14, while Bangladesh and Nepal recorded comparatively smaller reductions. Pakistan, by contrast, maintained the highest birth rate throughout the period, declining only marginally from 30 to 28 per 1,000 population, which helps explain its comparatively rapid population growth.

The total fertility rate (TFR) reveals a similar pattern of divergence. Maldives experienced the largest fertility decline, from 2.5 to 1.7 children per woman, followed by Bhutan, from 2.1 to 1.5. India, Sri Lanka, and Nepal converged toward approximately 2.0 - 2.1 children per woman by 2024, close to replacement level, while Bangladesh approached replacement fertility, declining from 2.3 to 2.2. Pakistan remained a clear outlier, with fertility declining only slightly from 3.7 to 3.6 children per woman, a level well above that of every other country in the region and consistent with its continued rapid population growth.

The infant mortality rate (IMR) generally declined during the study period, indicating improvements in child survival and healthcare access. India's IMR fell substantially, from 40 to 23 deaths per 1,000 live births, and Bangladesh's from 38 to 23. Pakistan improved from 67 to 49 but remained the highest in the region throughout the period. Sri Lanka recorded the lowest and most stable IMR in South Asia, declining slightly from 8 to 7,

reflecting comparatively strong maternal and child healthcare outcomes, while Bhutan's IMR fluctuated, rising from 15 in 2020 to 19 in 2024 despite an overall improvement relative to 2016.

4.4 Comparative Demographic Patterns: Taken together, the results reveal three broad demographic patterns across South Asia. First, Pakistan represents a high-growth pattern, characterised by relatively high fertility, high birth rates, and comparatively high infant mortality, indicating an earlier stage of demographic transition. Second, India, Bangladesh, and Nepal represent countries undergoing substantial demographic transition, marked by declining fertility, birth rates, and infant mortality alongside continued, though slowing, population growth. Third, Sri Lanka, Bhutan, and Maldives display more advanced fertility transitions, characterised by low fertility and birth rates and comparatively low infant mortality, alongside emerging concerns about population ageing and labor-force sustainability.

This variation matters because countries at different stages of demographic transition face fundamentally different policy challenges, ranging from rapid population growth and rising demand for employment and services, to population ageing, low fertility, and future labor-force constraints. The central finding of the comparative analysis is therefore not simply that population is increasing across South Asia, but that the demographic structure and rate of change are becoming increasingly differentiated among countries. This suggests that a single, uniform population policy for the region would be inappropriate, and that demographic planning must instead reflect the specific transition stage of each country.

5. Conclusion and Recommendations

5.1 Conclusion: This study has provided a comparative analysis of population dynamics in seven South Asian countries during 2016 - 2024 by integrating demographic data with country-specific policy context. The findings demonstrate that South Asia cannot be treated as a demographically homogeneous region; rather, it represents a complex landscape of diverse demographic transitions shaped by differing socio-economic conditions, policy interventions, and cultural contexts.

Sri Lanka and Bhutan have progressed beyond the classic demographic transition and are now confronting challenges associated with below-replacement fertility, population ageing, and a shrinking working-age population driven partly by migration. Pakistan, in contrast, continues to experience high fertility, reflecting limited progress in fertility reduction despite long-standing policy commitments, which may intensify future development pressures. Bangladesh has achieved substantial progress but remains in the later stages of transition, Nepal has crossed an important demographic threshold, and Maldives demonstrates that targeted, accessible reproductive-health interventions can drive significant fertility decline even within a small island context.

The overall conclusion of this study is that a universal, one-size-fits-all population policy is unsuitable for South Asia given the region's demographic diversity. Effective population management requires context-specific strategies that account for socio-cultural values, economic conditions, gender equality, reproductive rights, and individual well-being. Demographic success should therefore be measured not only through fertility and mortality indicators, but also through improvements in quality of life, empowerment, and broader human-development outcomes. This study highlights a persistent gap in South Asian demographic research the limited attention given to human-centered perspectives in evaluating population policy, and contributes toward addressing that gap.

5.2 Policy Recommendations: The findings point to the need for context-specific demographic policies that reflect the diverse population dynamics of South Asian countries, summarized in Figure 3.

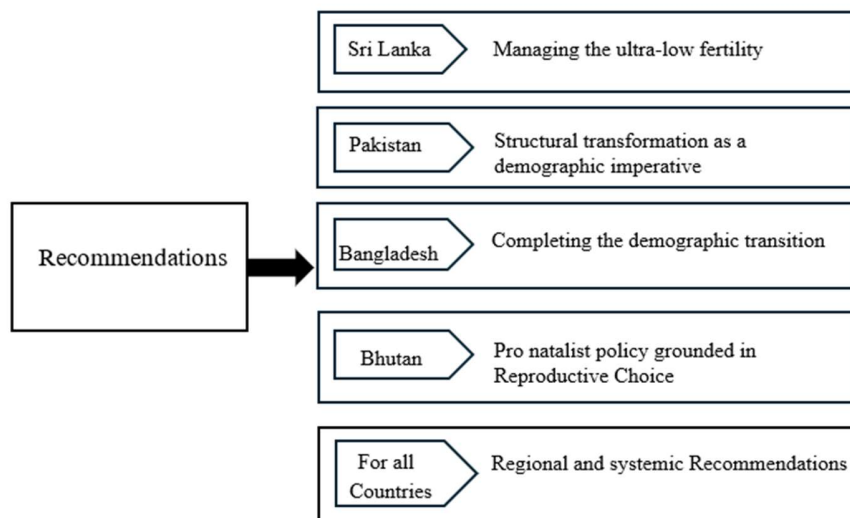


Figure 3: Country-Specific Population Policy Recommendations (Source: Authors' compilation)

For Pakistan, addressing rapid population growth should become a national development priority, supported by coordinated policy interventions, adequate investment, and long-term strategic planning. Priority should be given to expanding girls' education, strengthening community-based reproductive health services, and improving family planning, particularly in rural and marginalized communities. Engaging religious and community leaders is important for promoting acceptance of smaller family norms while respecting cultural values, alongside greater involvement of men in reproductive health decision-making to address household-level barriers to contraceptive use.

For Bangladesh, priority should be given to completing the remaining stages of demographic transition by shifting from a primarily contraceptive-distribution approach toward a comprehensive, rights-based reproductive-health framework. Continued investment in female education, women's employment, and the prevention of early marriage is essential to sustaining demographic progress, together with efforts to reduce regional disparities in reproductive-health access in geographically disadvantaged areas where fertility remains relatively high.

Sri Lanka requires a distinct policy direction given its transition toward ultra-low fertility and population ageing. Rather than continued fertility reduction, policy should shift toward supporting family formation through affordable childcare, improved parental leave, housing assistance, and financial support for young families. Addressing skilled and youth out-migration through better domestic employment opportunities is also critical, alongside updated policies to address changing family structures and rising demand for elderly care and social protection.

Bhutan should adopt supportive, voluntary family policies that reduce barriers to achieving desired family size, including family-friendly workplace arrangements such as parental leave and flexible employment. Policies should also aim to reduce youth migration by expanding domestic employment opportunities, encouraging diaspora engagement, and improving childcare provision, particularly in urban areas where professional households are concentrated.

At the regional level, South Asian countries should adopt a human-centred approach to population management that looks beyond conventional fertility and mortality indicators to incorporate measures of

reproductive autonomy, gender equality, maternal well-being, child development, and overall quality of life. Strengthening demographic data systems — including vital registration and sub-national monitoring — is necessary to support evidence-based decision-making, and population policy should be integrated with wider development priorities such as climate adaptation, food security, urbanisation, and labour-market planning. Finally, establishing a regional platform for demographic knowledge exchange would allow South Asian countries to share successful practices and policy innovations while keeping population programmes aligned with rights-based approaches that emphasise individual choice, gender equality, and reproductive rights.

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