

ASSESSMENT OF HEALTH SYSTEM PERFORMANCE IN TÜRKİYE OVER 2000-2023: A DESCRIPTIVE INTERNATIONAL COMPARATIVE ANALYSIS

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ABSTRACT

This article aims to provide an assessment of the Turkish health system, which has been reformed with the Health Transformation Program 2003-2013 (HTP). The comparative performance of the transformed Turkish health system has been descriptively investigated using a sample of country-level data covering the years 2000-2023. The analyses, which contain both developed and emerging countries, reveal the level of progress and trends across the globe in the commonly used indicators about healthcare expenditure, health insurance coverage, healthcare inputs, healthcare utilization, health outcomes, and risk factors. As a result of the evaluations in this article, it has been revealed that despite lower healthcare spending, Türkiye has significantly improved the population health outcomes with relatively less healthcare spending, particularly during the HTP reform period; however, continuity of this progress has not been observed after the reform period. The findings of the article call for more investigations to address the question of whether the Turkish health system has spent less on healthcare over the last twenty years while getting more better health outcomes. Thus, this policy-relevant article points out the importance of continued investment to healthcare as well as the efficiency and productivity issues in Türkiye's healthcare system as topics that need to be researched further.

Keywords: Healthcare Expenditure, Health Outcomes, Health Transformation Program (HTP), Health System Performance Assessment, Turkish Health System

TÜRKİYE SAĞLIK SİSTEMİ PERFORMANSININ DEĞERLENDİRİLMESİ: ULUSLARARASI KARŞILAŞTIRMALI TANIMLAYICI BİR ANALİZ

ÖZET

Bu makale, Sağlıkta Dönüşüm Programı 2003-2013 (SDP) ile reform edilen Türkiye sağlık sisteminin bir değerlendirmesini yapmayı amaçlamaktadır. Dönüşen Türkiye sağlık sisteminin karşılaştırmalı performansı, 2000-2023 yıllarını kapsayan ülke düzeyinde veriler yardımıyla betimleyici değerlendirmeler ile incelenmiştir. Gelişmiş ve gelişmekte olan ülkelerin durumuna dair makaledeki analizler, sağlık harcamaları, sağlık sigortası kapsamı, sağlık girdileri, sağlık hizmetlerinin kullanımı, sağlık sonuçları ve sağlık riski faktörleri ile ilgili yaygın olarak kullanılan göstergelerde dünya genelindeki ilerleme düzeyini ve eğilimlerini de ortaya koymaktadır. Makaledeki değerlendirmeler sonucunda, daha düşük sağlık harcamalarına rağmen Türkiye'nin özellikle SDP reform döneminde karşılaştırılan ülkelere nispeten daha az ülke sağlık harcamasıyla nüfusun sağlık istatistiklerini önemli ölçüde iyileştirdiği; ancak reform döneminden sonra bu ilerlemenin devamlılığının sağlanamadığı ortaya çıkmıştır. Makalenin bulguları, Türkiye sağlık sisteminin son yirmi yılda sağlık hizmetlerine daha az harcama yaparak daha iyi sağlık sonuçları elde edip etmediği sorusunu ele almak için araştırmaların yapılmasının gerekliliğini işaret etmektedir. Böylece, ülke sağlık politikaları açısından önemli değerlendirmeler içeren bu makale, sağlık

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hizmetlerine sürekli yatırım yapmanın önemini ve Türkiye sağlık sistemindeki verimlilik ve üretkenlik konularının daha fazla incelenmesi gereken konular olduğunu ortaya koymaktadır.

Anahtar Kelimeler: Sağlık Harcamaları, Sağlık Çıktıları, Sağlıkta Dönüşüm Programı (SDP), Sağlık Sistemi Performans Değerlendirmesi, Türkiye Sağlık Sistemi

1. INTRODUCTION

Türkiye's healthcare system has undergone a comprehensive multidimensional transformation over the past two decades, particularly with the start of the Health Transformation Program 2003-2013 (HTP). During this ten-year-long determined reform period, considerable progress has been made in universal health coverage and access to healthcare services.³ After the reform period ended in 2013, improvements did not continue at the same pace. There appears a wide range of publications that assess the HTP and review the health system of the country during the reform years in the 2010s (Ministry of Health of the Republic of Türkiye, 2003, 2009, 2011; OECD and Worldbank, 2009; Tatar et al., 2011; to name a few); however, over the last decade, there has been much less research that investigates the Turkish health system at both national and international level. With the aim of revealing the level of overall progress over the last two decades, this empirical policy-relevant article investigates the comparative performance of the transformed Turkish health system during and after the HTP reforms.

This article provides a descriptive comparative assessment of the Turkish health system using a sample of country-level data covering the years 2000-2023. With a diverse selection of sample countries, the exploratory analyses contain both developed and developing countries that vary in terms of socio-economic development conditions, healthcare models, and demographic profiles. As the article positions the Turkish health system's performance against other countries within the global landscape, it also reveals the level of progress and trends across the globe in the commonly used key indicators about healthcare expenditure, insurance coverage, healthcare inputs, healthcare utilization, health outcomes, and health risk factors. Hence, the evaluations in the article help to identify patterns, strengths, and areas for improvements in the country's healthcare system over the last twenty years; besides, the analyses in the article offer valuable background discussions and insights into potential areas for health policies on the efficiency and performance of health systems across the world.

The article proceeds as follows. The next section includes information on data and methods. Then, Section 3 presents the findings from the cross-country comparative investigation of the Turkish health system in terms of spending, insurance coverage, inputs, utilization, outcomes, and risk factors. In section 4, the article concludes.

2. DATA AND METHODS

The country-level dataset comes primarily from the Organisation for Economic Co-operation and Development (OECD) database, with some additional data coming from the World Health Organization (WHO) database

³ We refer interested readers for the description of Türkiye's HTP reform program to Atun et al. (2013), Boyacı (2022, 2023, 2024), and the Ministry of Health of the Republic of Türkiye (2003, 2009).



and the Turkish Statistical Institute (TURKSTAT). The assessments in the article are based on descriptive panel data analyses covering the years 2000–2023, which reveal Türkiye’s health system performance over the years in comparison to a sample of diverse countries worldwide.⁴ The selected country sample contains both developed and developing countries, which are Brazil (BRA), Canada (CAN), China (CHN), Germany (DEU), Greece (GRC), India (IND), Japan (JPN), Mexico (MEX), Poland (POL), Spain (ESP), Sweden (SWE), Türkiye (TUR), and the United Kingdom (GBR). The analyses include developed countries like Germany, Canada, and Japan, and developing countries like Brazil, Mexico, India, and China, and Mediterranean countries like Spain and Greece with economic, social, and geographical similarities with Türkiye.⁵

3. FINDINGS

3.1. Healthcare Spending

Healthcare spending has had a growing share of the economies. Countries have spent more and more on healthcare in the last two decades. Figure 1 shows the changes in healthcare spending as a percentage of GDP over the years. There appear to be two main paths for the change in the sample countries’ health expenditures between 2000 and 2023. One obvious fact is that developed countries (Germany, Canada, the UK, Japan, Sweden, Spain, and Greece) spend more of their GDP on healthcare than developing countries (Poland, Mexico, China, Türkiye, and India). Among the developing countries, Brazil seems exceptional in this regard; it spends more on healthcare than other developing countries.

As seen in Figure 1, the overall tendency except in Poland, Türkiye, and India is rising healthcare spending over the period 2000–2023. Developed countries spent 8 to 13 percent of their GDPs on healthcare in the 2020s, compared to 7 to 10 percent in the 2000s. Health spending in Türkiye has remained around 4–5 percent, which is far below the developed countries. Türkiye’s health spending rose to 5.5 percent of GDP in 2009, then there seems no sign of a rise; on the contrary, there has been a decreasing path since the 2010s.

⁴ The article’s purpose is not to explain the relationship between key health-related factors but to reveal patterns that may suggest areas for further research on the correlation and causation analyses about the topic.

⁵ Whenever data was unavailable for certain years or countries, notes are provided at the bottom of the related graphs throughout the article. The United States is deliberately excluded from the analyses due to its status as a global outlier; for the status of the U.S. healthcare system, the interested readers are referred to Gunja, Gumas, and Williams II (2023).

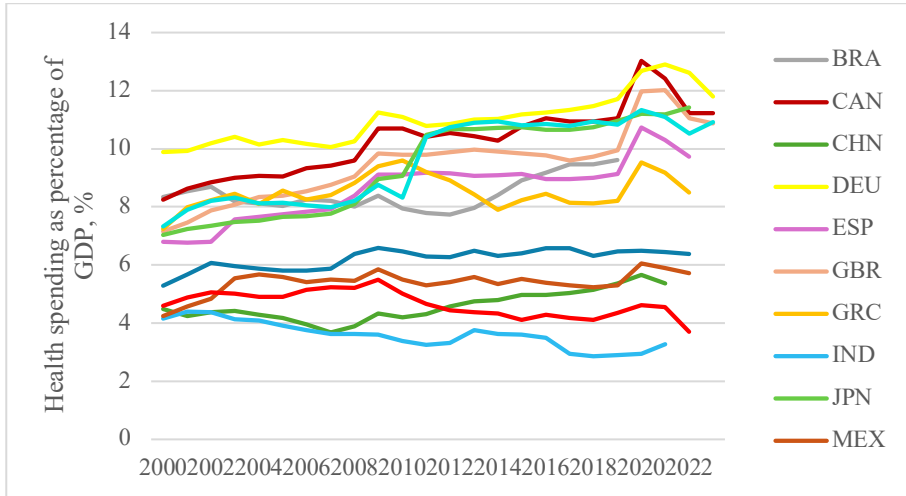


Figure 1: Percentage of GDP Spent on Health
Source: OECD

Notes: Current health expenditure (for all health functions by all health providers for all health financing schemes) is expressed as a percentage of GDP. This indicator includes healthcare goods and services consumed during each year, but does not include spending on health capital investments such as buildings and machinery. 2023 data for CAN, DEU, GBR, SWE; 2022 data for ESP, GRC, JPN, MEX, POL, TUR; 2021 data for CHN, IND.

In Figure 1, strikingly, it appears that the emerging countries in the sample have less spending in the recent years than in 2009, except China. Poland's health expenditure declined from 6.6% in 2009 to 6.4% in 2022; Mexico's health spending in 2009 was 5.8%, and it decreased to 5.7% in 2022; Türkiye's spending increased from 4.6% in 2000 to 5.5% in 2009, fluctuated between 4% and 5% in the following years, and became 4.6% in 2020 again; India's spending in 2009 was 3.6%, and it fell to 3.3% in 2021. In contrast, China's spending on healthcare rose from 4.3% in 2009 to 5.4% in 2021.⁶

As Figure 1 shows, after the years 2008-2009, which were the years of the global financial crisis, health spending of the sample countries remained stable or slightly increased until 2020 when the global pandemic arose. Unlike the other countries, during the 2010s, there was a decline in health spending in Türkiye from 5.5% of the GDP in 2009 to 4.1% in 2018. One striking observation is that, as of 2020, Türkiye spends 4.6% of its GDP on healthcare, much lower than other sample countries except India. All these observations suggest the need for deeper examinations of whether Türkiye has developed a more cost-effective healthcare model, whether there has been underinvestment in healthcare, or whether the population has hidden unmet healthcare needs.

⁶ As the subsequent discussions in the article suggest, there have been remarkable improvements in Türkiye's health outcomes during the study period, despite the country's unincreasing healthcare spending share from the economy. This interesting aspect of the Turkish health system has not yet been investigated. In addition, a comparison of the health systems of Türkiye and China can provide some policy lessons, as both countries have reformed their health systems over the last two decades.



Figure 2 contains per capita healthcare spending for the selected countries in the 2020s. Among them, Germany, Sweden, and Canada have the highest amount of health spending per capita, respectively. Türkiye’s health expenditure level is notably lower than those of developed countries, including Poland and Greece as well, which are much closer to Türkiye in terms of economic development; however, it is higher than those of emerging economies, namely, Mexico, China, and India. On the other hand, regarding the composition of health expenditures, Türkiye is in a similar situation to developed countries like Spain, the UK, and Canada, where more than 70% of healthcare expenditures are financed by government/compulsory insurance schemes. Very similar to Spain, in 2022, 75% of Türkiye's per capita health spending was from government/compulsory schemes, 19%, was from household out-of-pocket payments, and 5% from voluntary payment schemes.

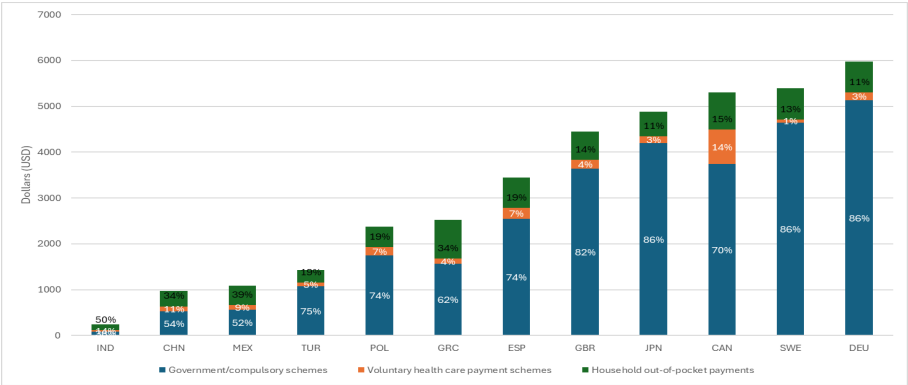


Figure 2: Per Capita Healthcare Expenditure
Source: OECD

Notes: Current health spending splits into government spending and compulsory health insurance financing (“government/compulsory”), voluntary health insurance financing and private out-of-pocket payments. 2023 data for CAN, DEU, GBR, SWE; 2022 data for ESP, GRC, JPN, MEX, POL, TUR; 2021 data for CHN, IND.

3.2. Health Insurance Coverage

Access to quality health services for all individuals, regardless of their socioeconomic status, is a fundamental principle and goal to be achieved in every country's health system. Most OECD countries have achieved universal or near-universal coverage of essential health services. Figure 3 demonstrates the health insurance coverage levels of the selected countries over the years. The developed countries, except Poland, provide universal health insurance coverage. Similar to the developed economies, Türkiye has also achieved nearly universal health insurance coverage in return to comparatively lower health spending. It is obviously seen that the implementation of the HTP reform program has played a pivotal role in the progress towards universal health coverage in the Turkish health system. When the HTP reforms started in 2003, 71.6% of the Turkish population was under government/compulsory health insurance coverage, which went up to 98% with the completion of the



reform program in 2013.⁷ Most recently, in 2022, 99.2% of the country's population is covered by government/compulsory insurance. From this aspect, Türkiye's health policy approach can provide an economic model and policy lessons for other middle-income countries aiming to achieve universal healthcare coverage with relatively less health spending. However, it should be remarked that in order to better discuss the effectiveness of the Turkish health system, issues on the scope/content, quality, types of services, and quality of health services within the scope of government insurance need to be investigated further.

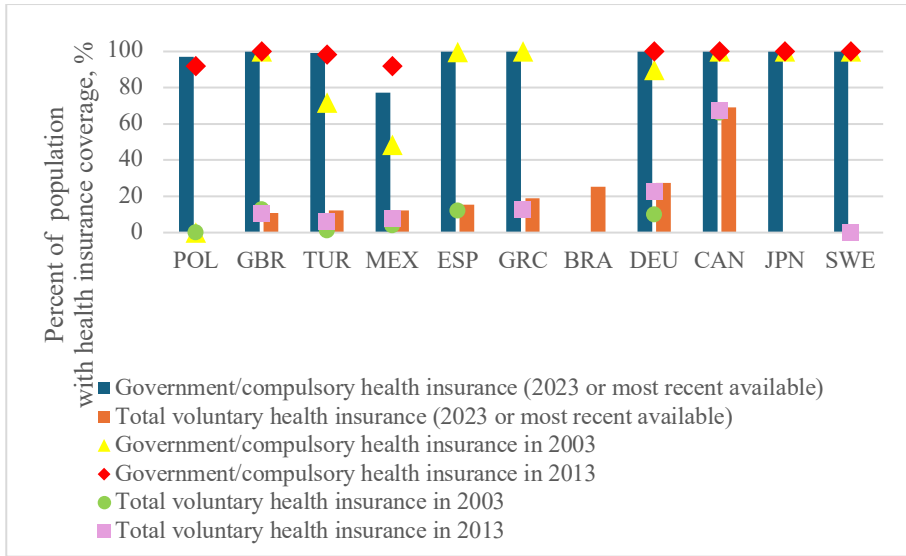


Figure 3: Health Insurance Coverage, 2003-2013-2023
Source: OECD

Notes: Population coverage for healthcare is the share of the population eligible for a core set of healthcare services, which is country-specific, through public or private health insurance. Government/compulsory health insurance: 2023 data for CAN, ESP, GRC, POL; 2022 data for DEU, GBR, SWE, TUR; 2021 data for JPN, MEX. Voluntary health insurance coverage: 2023 data for CAN; 2022 data for BRA, CAN, DEU, GBR, GRC, MEX, POL, TUR; 2020 data for ESP.

3.3. Healthcare Inputs

The two basic inputs of health care production are physicians and hospital beds, representing labor and physical capital in a typical production function in economics. Figure 4 illustrates the changes in the density of physicians in the selected countries over the last two decades. Countries with higher healthcare spending, such as the UK, Poland, Spain, Germany, Greece, and Sweden, also have a higher density of physicians. As shown in Figure 4, the number of physicians per population in Sweden is well above the other

⁷ Before the HTP reforms, Türkiye had a fragmented health insurance system with various health insurance schemes for the different segments of the society such as SSK, Bağ-Kur, and Emekli Sandığı. During the HTP reform period, all types of public health insurance schemes were consolidated under the Social Security Institution. For further details about the reforms related to the Turkish health insurance system, see Atun et al. (2013) and Gürsoy (2015).



countries with 71.2 physicians per 10,000 inhabitants, which has sharply risen from 32.8 in 2003.⁸ Following Sweden, Greece has a notably higher concentration of physicians.⁹ On the other end, Canada's supply of doctors per person appears to be far behind other developed countries.¹⁰

As seen in Figure 4, similar to Brazil, Türkiye has less density of physicians than many of the sample countries. Türkiye's number of professionally active physicians per 10,000 inhabitants has risen from 14.1 in 2003 to 17.5 in 2013 with the completion of the HTP reform period, and continued to rise to 21.7 in 2022. Compared to Türkiye, China has performed faster growth in its physician-to-population ratio over the past two decades, from 11.9 in 2003 to 16.6 in 2013 to 25.2 in 2021. The lower physician per capita in Türkiye could indicate either an efficient utilization of the healthcare workforce or a system under strain, where existing physicians face significant workloads to meet the population's needs. If the latter is the case, this situation may lead to longer working hours, less consultation time per patient, or less attention from the physician when examining the patient due to physician burnout, all of which need further investigation beyond this article.

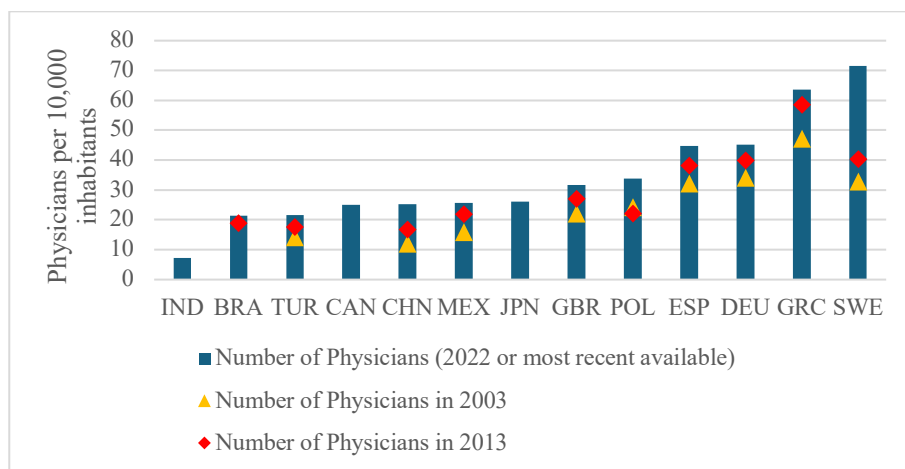


Figure 4: Physicians Per 10,000 Inhabitants, 2003-2013-2022

Source: WHO

Notes: The number of doctors (physicians) available per every 10,000 inhabitants in a population. 2022 data for CAN, GBR; 2021 data for BRA, CHN, DEU, ESP, GRC, MEX, POL, SWE, TUR; 2020 data for IND, JPN.

⁸ Sweden has the highest density of physicians among the sample countries. A policy-relevant investigation of the medical education and health system in Sweden can provide valuable insights for Türkiye and other countries as well. For more on the state of health in Sweden, see OECD/European Observatory on Health Systems and Policies (2017).

⁹ Regarding why Greece has the highest density of physicians among European Union countries, we refer interested readers to Kaitelidou et al. (2012) whose focus is on understanding the excess supply of physicians in Greece. For a broader analysis of the state of health in Greece, see also OECD/European Observatory on Health Systems and Policies (2019).

¹⁰ See Islam et al. (2023) for a discussion on physician shortages and inadequate patient access to physicians in Canada.



Figure 5 shows the changes in the density of hospital beds in the sample countries from 2003 to 2022. Hospital beds per 10,000 people in the countries significantly vary from 10.0 beds in Mexico to 125.5 beds in Japan for the year 2022.¹¹ As Figure 5 shows, over the last two decades, most of the sample countries have shown an unincreasing trend in hospital bed density, except China and Türkiye. The majority of the countries (namely, Japan, Germany, Poland, Greece, Spain, Canada, the UK, Sweden, and Mexico) appear to have lowered their hospital bed density over the last two decades, which suggests that their health policy approach may have shifted towards more cost-effective healthcare delivery with lesser duration of hospital stays.¹²

As seen in Figure 5, hospital bed density in Mexico and Brazil has remained around 10 beds and 24 beds per 10,000 population, respectively, over the years. On the other hand, Türkiye and China continue to increase their hospital bed concentrations. Türkiye's hospital beds per 10,000 people have risen from 24.8 beds in 2003 to 26.5 beds in 2013 to 30.9 beds in 2022. The growth in China's hospital density since the 2000s is even more striking. China's hospital beds per 10,000 population was 17.6 beds in 2003 rose to 33.3 beds in 2013 and 52.0 beds in 2021. As the main inputs of healthcare production, China's increasing physician and hospital bed densities seem to be in line with the rise in healthcare spending in China over the years.

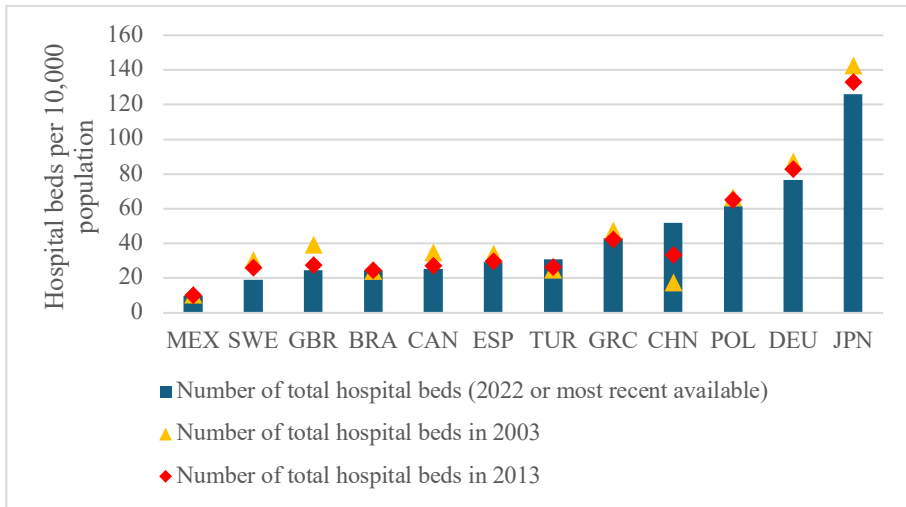


Figure 5: Hospital Beds Per 10,000 Population, 2003-2013-2022
Source: OECD

Notes: The number of hospital beds available per every 10,000 inhabitants in a population. 2022 data for CAN, DEU, ESP, GBR, GRC, JPN, MEX, POL, SWE, TUR; 2021 data for BRA, CHN.

¹¹ Among the selected countries, Japan has the highest number of hospital beds per capita, which may reflect a different healthcare model that accommodates longer hospital stays for patients. Japan's relatively moderate level of doctor density and relatively high level of hospital bed density suggest that Japan's healthcare production function appears to be exceptionally different than other countries in terms of its labor-capital input mix.

¹² Overall, there is a trend of declining hospital beds across most sample countries, except for China, Türkiye, and India. However, the lower number of hospital beds in most countries may also pose challenges, particularly in public health crises or pandemics, where the demand for hospital care can surge unexpectedly.



3.4. Healthcare Utilization

The essential healthcare resources together with universal health coverage discussed in the previous subsections may not be enough to ensure the necessary level of healthcare utilization among the population within a country's health system. This shortfall can arise from various barriers to accessing healthcare, leading to disparities in healthcare utilization across different health systems. Figure 6 depicts the changes in physician consultations per capita over the years among the selected countries. The main trend of increases in physician visits per person across countries between 2003 and 2013 seems to have switched to a trend of decrease in the last decade, except in Türkiye. After Japan, Türkiye exhibits the highest physician consultations per capita among the selected countries, with per capita consultation levels of 3.4, 8.2, and 10.0 consultations per person in 2003, 2013 and 2022, respectively. On the other end, the number per capita consultations in Brazil, Mexico, Sweden, and Greece, around 2 per year, appears to be too low compared to Germany, Türkiye, and Japan with more than an average of 9 consultations per year.

As seen in Figure 6, strikingly, despite its much lower healthcare spending depicted in Figure 1-2, Türkiye is among the countries with very high physician consultations per capita among the selected countries after the 2010s. Also, where most countries show a decrease in the number of consultations, Türkiye, in contrast, has a steady rise in the number. On the one hand, this higher number can arise from unnecessary short visits, or this could indicate a healthcare system where patients are encouraged to seek medical advice regularly, potentially leading to better health outcomes.

On the other hand, the high physician consultation rates in Türkiye, coupled with a much smaller density of physicians as shown in Figure 4, raises concerns about the potential overburdening of doctors who are the main ingredient of healthcare provision. Thus, such a contrast between Türkiye's status with developed countries like Germany, Canada, and Spain, where consultation rates are lower than those of Türkiye, highlights the need for further research to understand the drivers behind these differences. Understanding the underlying factors behind the more utilization with less inputs in Türkiye's health system could definitely be able to inform future health policies for optimizing healthcare service delivery in the country.

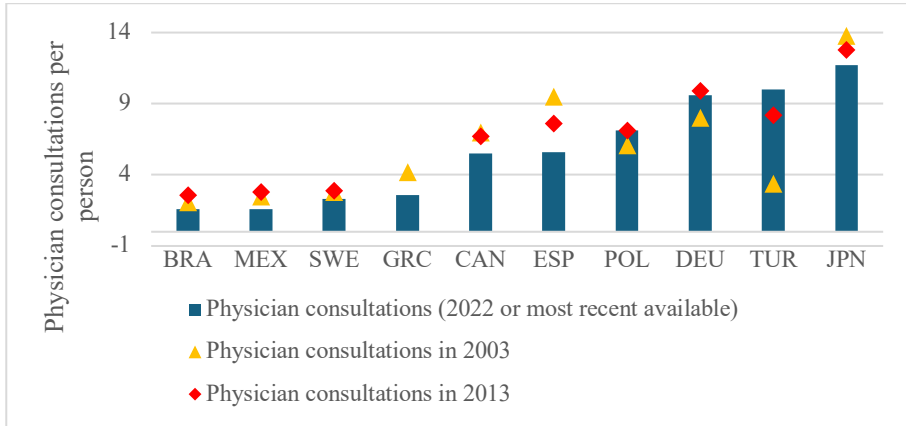


Figure 6: Physician consultations in all settings per capita, 2003-2013-2022
Source: OECD

Notes: Average number of physician consultations/visits per person per year to the primary, secondary and tertiary healthcare facilities. 2022 data for DEU, ESP, GRC, MEX, POL, SWE, TUR; 2021 data for BRA, CAN, JPN. 2014 data for ESP. Data for CHN is not available.

Figure 7 indicates the average length of stay for inpatients, which is another widely-used healthcare utilization indicator and is measured by dividing the total number of days stayed by all inpatients by the number of hospital admissions during a year. The average length of stay in hospitals is interpreted as an indicator of the efficiency of health systems. As seen in Figure 7, the general tendency in average length of hospital stays has been remained about the same levels or a slight decrease over the past two decades. With 27.3 days in 2022 that decreased from 36.4 days in 2003, Japan continues to have the longest average hospital stays over the years.¹³ Türkiye's average length of hospital stays is the shortest among the countries included in the analysis, decreased from 5.8 days on average in 2003 to 3.9 days in 2013 and then increased to 4.2 days in 2022. This shorter average length of hospital stay in Türkiye may reflect a high turnover of hospital beds due to the presence of less than necessary hospital beds and other physical and human healthcare resources in the country. This finding may indicate the country's healthcare approach to discharge patients from hospitals as early as possible due to capacity constraints in healthcare services. All these aspects call for more

¹³ Japan ranks first in the world in terms of average length of hospital stay, significantly higher than the selected countries in this analysis; and consistently, Japan differs significantly in the world in terms of the number of hospital beds. This longer length of hospital stay can be attributed to the distinctive features of Japan's healthcare delivery model in which the hospital care sector has traditionally been the dominant healthcare provider. OECD (2015) discusses the longest length of hospital stay in Japan compared to other OECD countries with the abundance of hospital beds and the structure of hospital payments in Japan. Muramatsu and Liang (1999) investigated factors that may account for the country-level differences in hospital length of stay from a sociocultural perspective. Tiessen et al. (2013) focus on the causes of international differences in hospital stay lengths. Their findings suggest that nonclinical factors, including professional and cultural norms, payment schemes, and access to long-term care facilities, contribute to the variations in hospital stay durations across countries. Kato et al. (2014) examined the length of hospital stay in Japan over a long period from 1971 to 2008 in relation to hospital ownership and cost-containment policies. Takaku and Yamaoka (2019) shed some light on the link between reimbursements for hospital care and the longer average hospital length of stay in Japan.



investigations on the implications of shorter hospital stays in Türkiye, particularly regarding patient outcomes, readmission rates, and overall healthcare spending in the country.

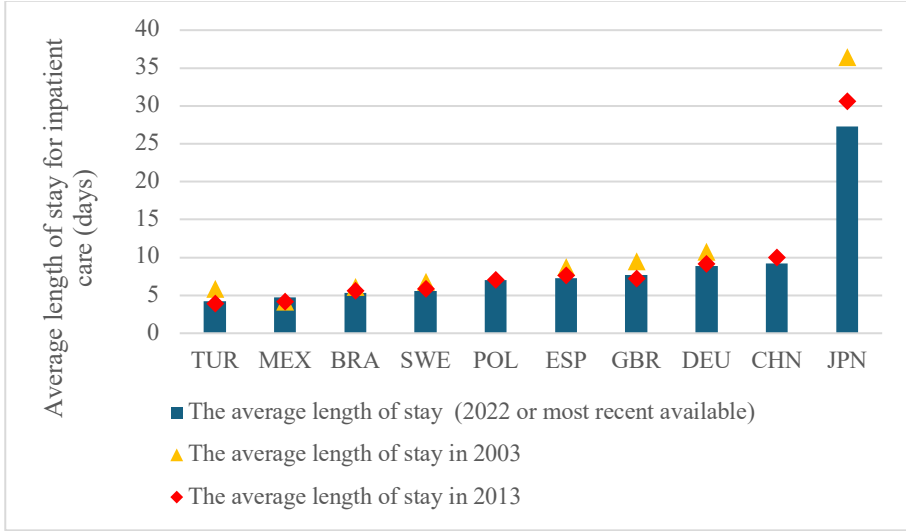


Figure 7: Average Length of Stay for Inpatient Care, 2003-2013-2022
Source: OECD

Notes: The average number of days that patients spend in hospital, measured by dividing the total number of days stayed by all inpatients during a year by the number of admissions or discharges. 2022 data for DEU, ESP, GBR, JPN, MEX, POL, SWE, TUR; 2021 data for BRA, CHN.

3.5. Health Outcomes

The ultimate objective of a country's healthcare system is to ensure a healthier population. Life expectancy and mortality rates are primary indicators for monitoring population health status across countries. Figure 8 demonstrates the life expectancy years at birth, one of the most commonly used health status indicators, which indicates how long a newborn baby is likely to live on average. There appears a general upward trend until the pandemic year 2020, together with two main country patterns among the sample countries. Life expectancy years in developed countries like Germany, Canada, England, Japan, Sweden, Spain, and Greece is higher than in developing countries like Poland, Mexico, China, Brazil, Türkiye, and India. Japan has the highest life expectancy at birth increased from 81.5 years in 2000 to 84.6 years in 2020 while India has the lowest with 62.7 years in 2000 and 70.9 years in 2020. Türkiye's life expectancy has continued its rise from 71.5 years in 2000 to 74.6 years in 2012 and remained about 78 years after the HTP reform program in the following years. Similar to Türkiye, China seems to have performed fast improvements in life expectancy at birth from 71.4 years in 2000 to 78 years in 2020. On the other hand, Mexico appears to differ from the overall trend of increases in life expectancy at birth over the last two decades, with its life expectancy slightly rising from 75 years in 2000 to 75.2 years in 2020.

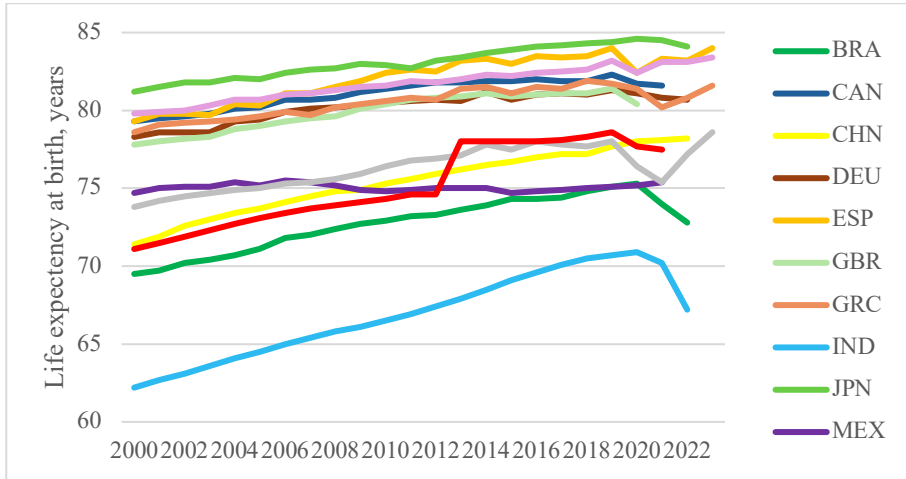


Figure 8: Life Expectancy at Birth, 2000-2023

Source: OECD

Notes: Life expectancy at birth is the average number of years a newborn is expected to live in condition that age-specific mortality rates remain unchanged. 2023 data for ESP, GRC, POL, SWE; 2022 data for BRA, CHN, IND, JPN; 2021 data for CAN, MEX, TUR; 2020 data for GBR.

Such descriptive comparative observations encourage further thinking about the drivers of life expectancy gains of the countries over the years. Figure 9 plots the life expectancy at birth against health spending per person of the sample countries in order to visualize the positive association between health spending and life expectancy. Likewise China, Türkiye positions above the trendline that implies relatively less spending for the same level of life expectancy.¹⁴

Jaba et al. (2014) estimated life expectancy at birth of countries as a function of per capita health expenditures from 1995 to 2010 using a panel data regression analysis and found a significant relationship. The results of the panel data regression analysis by Jaba et al. (2014) suggest that changes in health expenditures across countries are a driver of differences in health outcomes such as life expectancy. According to the OECD (2017), which offers a cross-country analysis of the determinants of life expectancy gains between 1990 and 2010, health spending of countries has been the primary contributing factor to increases in life expectancy, followed by education, income, and lifestyle factors, respectively. Moreover, OECD (2017) showed some differences in the determinants of health by a country's level of economic development; while per capita healthcare spending of countries has been the main driver of gains in life expectancy for high-income countries, income (in terms of GDP per capita) was the main driver in emerging economies.

¹⁴ Türkiye's health spending was 4.4% and 4.6% of the GDP in 2013 and 2020, respectively. In comparison, China's health spending has risen from 4.7% in 2013 to 5.7% in 2020. The experience of China with both increased healthcare spending and improved life expectancy might offer valuable insights into health policies for Türkiye.

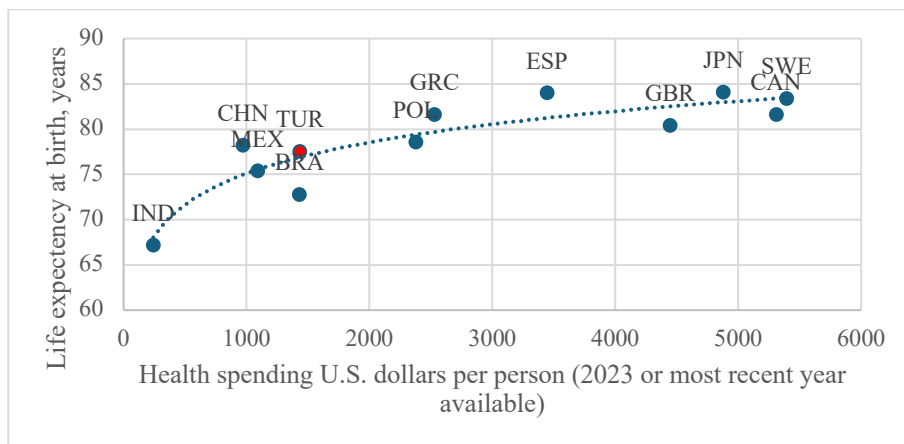


Figure 9: Life Expectancy at Birth and Health Expenditure per Capita,
Source: OECD

Notes: Per capita spending: 2023 data for CAN, GBR, SWE; 2022 data for ESP, GRC, JPN, MEX, POL, TUR; 2021 data for CHN, IND; 2019 data for BRA. Life expectancy at birth: 2023 data for ESP, GRC, POL, SWE; 2022 data for BRA, CHN, IND, JPN; 2021 data for CAN, MEX, TUR; 2020 data for GBR.

Figures 10 and 11 illustrate the changes in infant and maternal mortality rates over the last two decades in the sample countries. There is noticeable progress in the infant mortality rates among the sample developing countries, particularly in China, Türkiye, and India. Türkiye has demonstrated dramatic improvements in both maternal and infant mortality rates during this period, especially through the HTP reform period; however, it still ranks among the countries with comparatively higher infant and maternal mortality rates. Türkiye's infant mortality in 1,000 live births has decreased from 29.0 in 2003 to 10.1 in 2013 at the end of the reform period and to 9.1 in 2022. Maternal mortality in 100,000 live births was 61.0 in 2003, declining to 15.7 in 2013 and 12.6 in 2022. These significant reductions in the two commonly used health outcome indicators reflect the outputs of Türkiye's health reform program; however, after the reform period, there appear to be slight improvements in both maternal and infant mortality rates. Thus, compared to developed countries, there is still room for improvement in Türkiye's health system.

As seen in Figure 10, while Türkiye and China had similar levels of infant mortality rates in 2013, China continued to improve its infant mortality rates in the 2010s as well. China's infant mortality rate has decreased from 9.7 in 2013 to 5.1 in 2021. Again, the continuing rise in healthcare spending in China, unlike in Türkiye, might be the driving force behind the further improvements in health outcome indicators. Such descriptive comparisons call for further research on whether Türkiye still needs to increase the country's health expenditure to produce much better health outcomes similar to those of China.

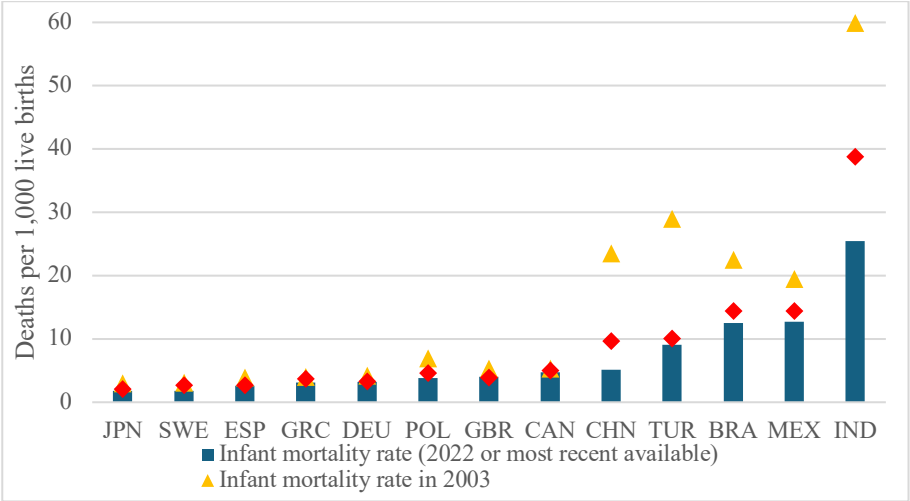


Figure 10: Infant Mortality Rate, 2003-2013-2022
Source: OECD

Notes: Infant mortality rate is the number of children who die before reaching their first birthday in a given year, expressed per 1 000 live births. 2022 data for CAN, DEU, ESP, GRC, JPN, POL, TUR; 2021 data for BRA, CHN, GBR, IND, MEX, SWE.

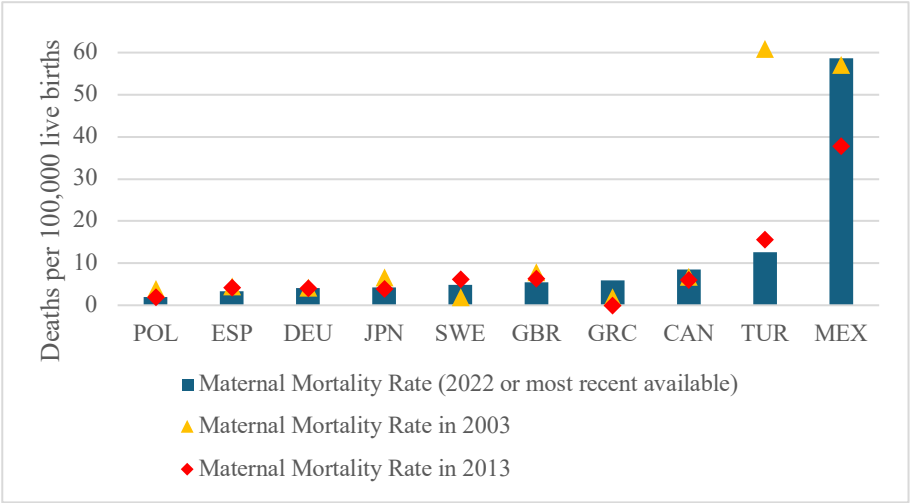


Figure 11: Maternal Mortality Rate, 2003-2013-2022
Source: OECD

Notes: Maternal mortality is as the death of a woman while pregnant or during childbirth or within 42 days of termination of pregnancy, expressed per 100,000 live births. 2022 data for CAN, DEU, ESP, JPN, POL, SWE, TUR; 2021 data for GRC, MEX. 2017 data for GBR. Data for BRA, CHN are not available.



As another widely used indicator of population health outcomes, Figure 12 illustrates the avoidable deaths per 100,000 population in the sample countries since 2000. The avoidable mortality rate in these countries shows a general decline from 2000 to 2019. However, following the global pandemic in 2019, there has been a spike in death rates. Similar to previous indicators, two primary groups of countries emerge. Developing countries such as Mexico, Brazil, Poland, and Türkiye exhibit higher avoidable death rates than developed countries like the United Kingdom, Greece, Germany, Canada, Spain, Sweden, and Japan. Türkiye shows no clear trend of increase or decrease. The avoidable deaths per 100,000 inhabitants in Türkiye were 251.5 in 2010, and then rose to 276.2 in 2013 before falling to 232.7 in 2019. Such discrepancies observed in various health indicators between the sample developing and developed countries highlight the need for ongoing efforts to achieve better health system outcomes.

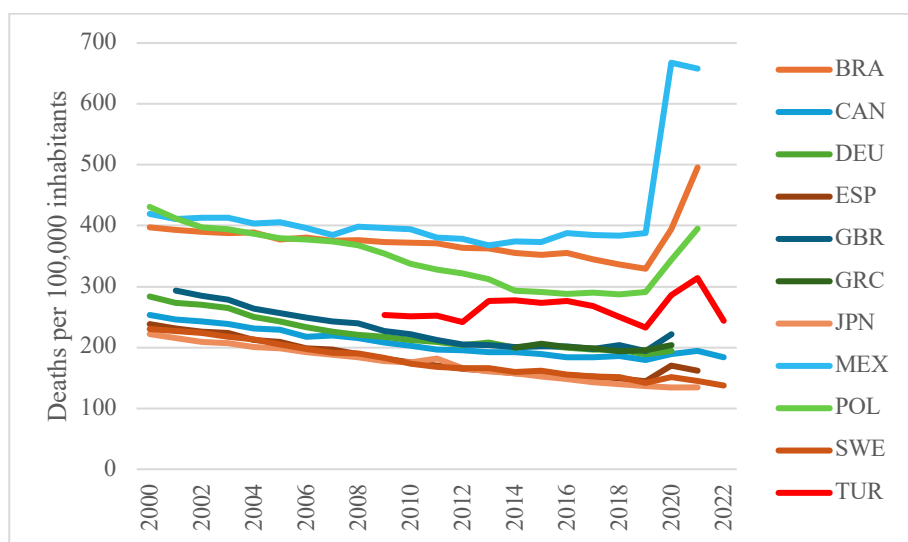


Figure 12: Avoidable deaths per 100,000 population

Source: OECD; Türkiye's data for the years 2020, 2021, and 2022 come from the Ministry of Health Statistics Yearbook 2022.

Notes: Avoidable deaths includes preventable and treatable mortalities, expressed per 100,000 population. Preventable mortality is causes of death among people aged under 75 years that can be mainly avoided through effective public health and primary prevention interventions (i.e. before the onset of disease/injury, to reduce incidence); treatable (or amenable) mortality is causes of death that can be mainly avoided through timely and effective healthcare interventions, including secondary prevention and treatment (i.e. after the onset of disease, to reduce case fatality). 2022 data for TUR, CAN, SWE; 2021 data for BRA, ESP, JPN, MEX, POL; 2020 data for DEU, GBR, and GRC.



According to Constitution of the World Health Organization (1946), ‘health’ is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Therefore, as another measure of mortality, Figure 13 presents intentional self-harm deaths. It is clear that among the sample countries, those in the Mediterranean and Latin America regions show a lower suicide rate than the other countries. While suicide rates are higher in Japan and Sweden, Türkiye and Greece have lower levels. As Figure 13 shows, Türkiye had 4.4 deaths per 100,000 inhabitants in 2019, which is noticeably lower than other countries. The relatively lower suicide rate in Türkiye may be reflecting cultural and social factors that influence mental health.

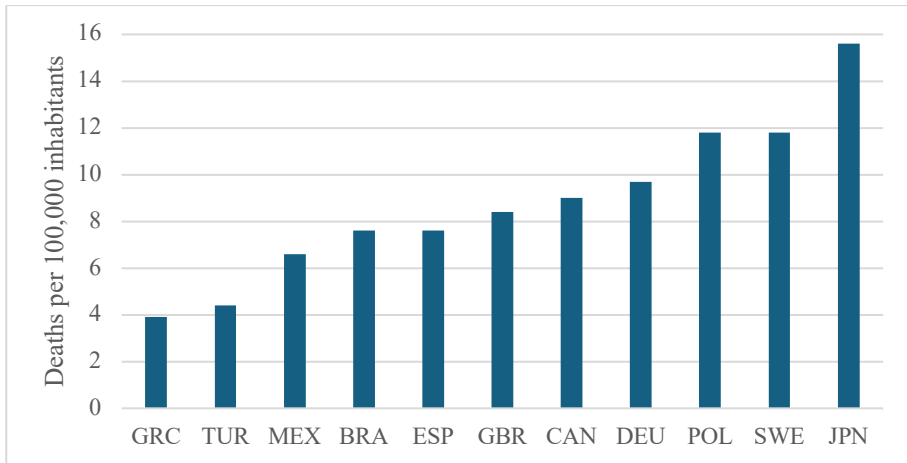


Figure 13: Intentional Self-Harm Deaths, 2022 or most recent data available
Source: OECD

Notes: Intentional self-harm (suicide) deaths deliberately initiated and performed by a person in the full knowledge or expectation of its fatal outcome, expressed per 100,000 population. 2022 data for CAN and SWE; 2021 data for BRA, ESP, JPN, MEX, POL; 2020 data for DEU, GBR, GRC; 2019 data for TUR.

3.6. Health Risk Factors

Beyond treatment, rehabilitation, and long-term palliative care offered by healthcare facilities, universal health coverage (UHC) encompasses a wider range of health-related services, including health promotion and disease prevention.¹⁵ Health promotion activities raise awareness about healthy lifestyles and contribute to the prevention of diseases before they occur. Health policies that directly focus on promoting a healthier lifestyle and environment, alongside early detection and treatment services, can alleviate the financial burden of diseases on health systems by lowering the risk of disease development. Smoking and obesity are recognized all around the world as risk factors for health contributing to the development of serious illnesses.

¹⁵ “Universal health coverage (UHC) means that all people have access to the full range of quality health services they need, when and where they need them, without financial hardship. It covers the full continuum of essential health services, from health promotion to prevention, treatment, rehabilitation and palliative care.” (WHO, 2025).



Figure 14 indicates the prevalence of obesity (body mass index of greater or equal to 30 kg/m²) as percentage of population. A general upward trend in obesity is observed in the sample countries over the study period 2003-2022. Almost all the sample countries show increasing rates of obese population which is a serious threat to the public health of countries and additional burdens on the health systems globally. Among these, Mexico has the highest level of obesity rate with 32.4% of the population in 2012 and 36.0% in 2022. Germany stands out as a remarkable exception, having reduced its obesity rate to 16.7% in 2021, which is closer to the obesity rate of 12.9% in 2003, from 23.6% in 2013. Germany's initiative to control the population's obesity rate may offer valuable policy lessons for the world.¹⁶ Similar to Brazil, Türkiye is among the countries experiencing a significant increase in obesity rates, with an alarming rise over the last two decades that poses a serious health risk. In 2003, 12.0% of Türkiye's population was obese, increasing to 17.2% in 2012 and 20.2% in 2022, which presents a considerable ongoing health threat to public health. Although Türkiye's obesity rate appears moderate compared to other sampled countries, the upward trend serves as a wake-up call to implement health policy measures.

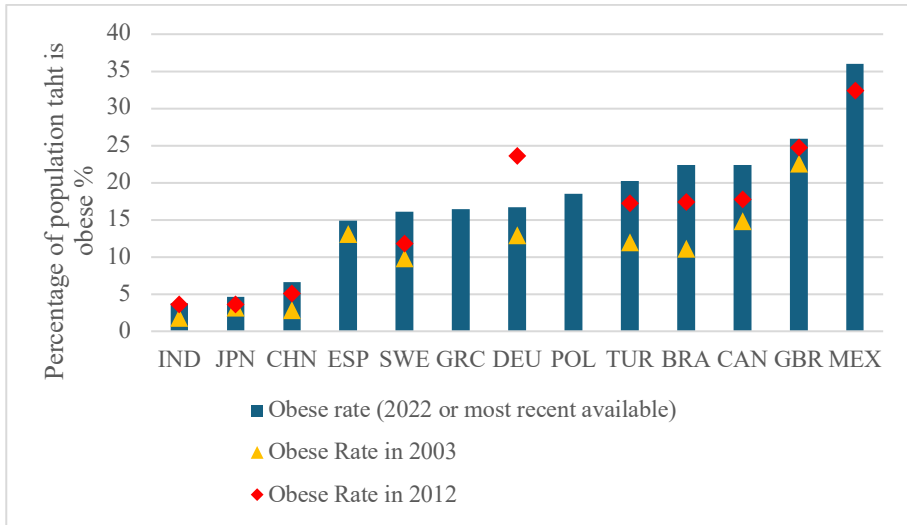


Figure 14: Percentage of Population that is Obese, 2003-2013-2022
Source: OECD

Notes: Overweight or obese population is the share of the population with excessive weight presenting health risks because of the high proportion of body fat. Adults with a body mass index (BMI, weight/height²) from 25 to 30 km/m² are defined as overweight, and those with a BMI of 30 or over as obese. 2022 data for CAN, SWE, TUR; 2021 data for BRA, DEU, GBR; 2020 data for ESP and MEX; 2019 data for GRC, POL, JPN; 2016 data for CHN, IND; 2012 data for BRA, CAN, SWE, TUR, CHN, DEU, GBR, IND, JPN, MEX; 2003 data for BRA, CAN, DEU, ESP, SWE, TUR, CHN, GBR, IND.

¹⁶ See European Observatory on Health Systems and Policies and Plümer (2019) for intervention measures on the health agenda in Germany for the increasing prevalence of obesity during the 2000s. For an approach to quantifying the economic burden of obesity at country level, the interested readers are referred to Sweis (2014).



Another risk factor for the health systems of countries is smoking habits. Figure 15 shows the percentage of the population aged 15 years and older who are daily smokers. All the sample countries except Türkiye appear to have a general decline trend over the years. The share of the smoker population is highest in Türkiye among the selected group of countries and it has increased after 2012 in contrast to the declining pattern in many of the sample countries. The percentage of Türkiye’s population who are daily smokers first fell from 32.1% in 2003 to 23.8% in 2012 and rose to 28.3% in 2022. Despite the fact that smoking is one of the highly preventable causes of mortality, the data points out that it continues to pose a severe public health risk for the majority of the Turkish population and to be a burden on Türkiye’s health system in the next several decades.¹⁷

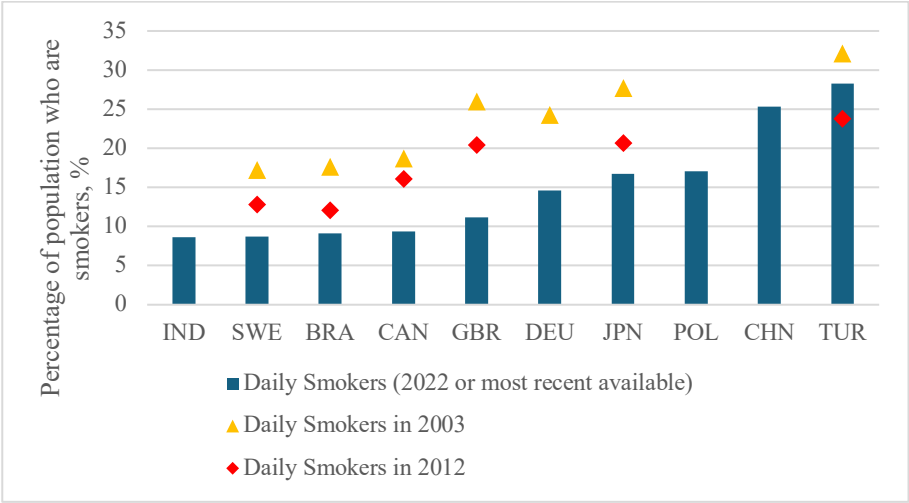


Figure 15: Share of Population who are Daily Smokers (15 years or over), 2003-2022
Source: OECD

Notes: The proportion of daily smokers is defined as the percentage of the population aged 15 years and over who report smoking tobacco every day. 2022 data for CAN, GBR, SWE, TUR; 2021 data for BRA, DEU, MAX; 2020 data for CHN; 2019 data for IND, JPN, POL.

4. CONCLUSION

This article offers a comprehensive comparative description of the situation of Türkiye’s transformed healthcare system with the completion of the ten-year-long HTP (2003-2013) reform program in comparison to various sample countries through the years 2000 and 2023. The descriptive analyses in the article positioned the performance of the Turkish health system against

¹⁷ Daglı Guner (2024) addresses why tobacco consumption increasing in Türkiye and highlights the supply-side policies to improve the effectiveness of demand-oriented measures to combat smoking habits. For a more focused and comprehensive analysis of health risk factors, the interested readers are referred to Yenioğlu and Yenimahalleli Yaşar (2024), which provide a cluster evaluation analysis of OECD countries according to their health risk factors. They found that Türkiye belongs to the cluster with the highest health risk levels among OECD countries, and shares the greatest similarity in health risk factors with Italy, Portugal, Spain, and Mexico.



selected sample countries worldwide. In doing so, the article also revealed the level of progress and trends in key health system indicators related to countries' health systems globally over the past two decades. From this aspect, the analyses in the article offer valuable background discussions and insights into potential areas for policy discussions for the efficiency and performance of health systems across the world.

The evaluations in the article revealed that despite lower healthcare spending, Türkiye has significantly improved the population health outcomes and healthcare utilization with relatively less healthcare spending and resources, particularly during the HTP reform period; however, the continuity of this progress has not been observed at the post-HTP reform period after the 2010s. An overall assessment of all the findings together suggests that while Türkiye has made significant improvements in healthcare, areas still require further investigation and potential improvement. The article highlights the need for continued investments in healthcare infrastructure, human capital, and public health policies to address ongoing challenges in the way of converging to developed countries and ensuring the long-term sustainability of Türkiye's healthcare system.

The results of the article bring forward the question of whether Türkiye can achieve sustained improvement to catch the health outcomes of developed countries if Türkiye's spending on healthcare is increased to their levels. To put it forward, China's progress path can provide some policy implications. Unlike the stagnant share of the healthcare expenditures from the whole economy in Türkiye after the 2010s, China has continued to increase the share of healthcare expenditures and achieved improved health system outcomes.

To conclude, the article calls for more investigation to address the health policy question of whether the Turkish health system has spent less on healthcare over the last twenty years while getting much better health outcomes. Thus, this policy-relevant article points out the importance of continued investment in healthcare as well as the efficiency and productivity issues in Türkiye's healthcare system as topics that need to be researched further.

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