Major storm on the horizon

Health and macroeconomic burdens of noncommunicable diseases and mental health conditions in South America

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Pan American Health Organization
World Health Organization
Americas Region

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Foreword

While we immediately see the direct impact of factors that adversely impact health, such as the health-related emergency that occurred during the recent COVID-19 pandemic, societies are less aware of the intersection between health and national economic outcomes. This publication, *Major storm on the horizon: Health and macroeconomic burdens of noncommunicable diseases and mental health conditions in South America*, presents a timely and critical analysis of the escalating crisis of noncommunicable diseases (NCDs) and mental health conditions in South America, as well as the projected impact on the economies of this subregion.

The intrinsic value of health is not limited to individual well-being; it is also a cornerstone of societal prosperity development and economic stability. NCDs accounted for 74% of global deaths immediately before the COVID-19 pandemic, with South America experiencing an even greater burden, where these conditions and mental health disorders are responsible for 77% of deaths. This health crisis reverberates throughout our economies, stifling growth and perpetuating cycles of poverty and inequality.

Despite the clear connection between health and economic productivity, investment in health interventions, particularly through risk factor prevention, continues to lag. The persistent underfunding of essential services, from vaccines to mental health support, reflects a historical undervaluation of health as a collective public good. We must shift our perspective to recognize that health is not merely a personal commodity but rather a shared asset capable of yielding substantial returns to benefit society as a whole.

This report highlights the significant economic implications of the rising burden of NCDs and mental health conditions, estimating potential gross domestic product (GDP) losses of over USD 7.3 trillion between 2020 and 2050 in the South American subregion. These figures serve as an urgent call to take immediate action.

To confront these challenges, it is imperative to adopt comprehensive, multisectoral strategies that address the myriad determinants of health. By fostering partnerships and investing in prevention and healthcare infrastructure, we can unlock economic benefits while simultaneously improving health outcomes.

We must therefore recognize that investing in health is investing in our future, and the future of generations to come — where individuals thrive, economies flourish, and societies prosper. By working together, we can create a healthier, more productive, and more equitable South America.

Jarbas Barbosa da Silva Jr.
Director
Pan American Health Organization

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[1] Ferranna M, Cadarette D, Chen S, Ghazi P, Ross F, Zucker L, et al. The macroeconomic burden of noncommunicable diseases and mental health conditions in South America. PLOS ONE. 2023;18(10):e0293144. Available from: https://doi.org/10.1371/journal.pone.0293144.

Abbreviations and acronyms

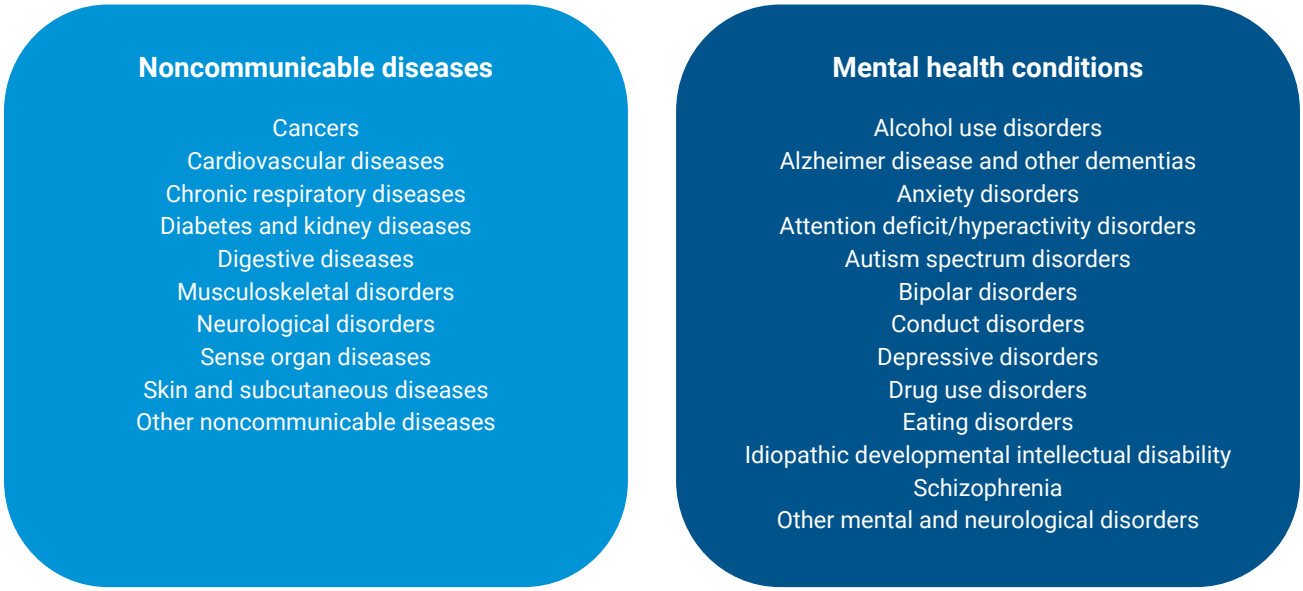
DALY	disability-adjusted life year
GDP	gross domestic product
NCD	noncommunicable disease
NMH	noncommunicable diseases and mental health conditions
PAHO	Pan American Health Organization
USD	United States dollar
WHO	World Health Organization

Background

The importance of good health has historically not been fully appreciated. In part, this is because evaluations of the benefits of health – such as traditional health technology assessments – frequently consider only health's intrinsic value, that is, the enjoyment and satisfaction of longer, healthier lives. However, there are myriad indications that good health also imparts significant instrumental value, enhancing social and economic well-being both for the individual and for society *(1–3)*. Undervaluing the full potential benefits of health has therefore likely resulted in long-term underinvestment in the interventions that protect and promote health, from vaccines and pharmaceutical drugs to diagnostics, medical devices, and procedures, as well as in institutional and policy reforms, including universal health care. Decades ago, global policymakers recognized that the broad instrumental benefits of education are much greater than the more narrowly measured intrinsic benefits. When they understood the extent of these unrealized economic gains because of poorly funded education, there was an exponential expansion in education's quantity and quality *(4, 5)*. Similar recognition and advocacy should be applied to the full value of good health, not least because poor health can impose serious economic consequences on societies beyond the burden of disease.

This report will examine the dangers posed by current and rising rates of noncommunicable diseases and mental health conditions (NMHs) (Figure 1), beyond their health risks, by demonstrating

FIGURE 1. **Noncommunicable diseases and mental health conditions (NMHs)**



Source: Classification of NCDs and mental health conditions adapted from Vos T, Lim SS, Abbafati C, Abbas KM, Abbasi M, Abbasifard M, et al. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet. 2020;396(10258):1204–1222. Available from: https://doi.org/10.1016/S0140-6736(20)30925-9.

their considerable negative impact on economic growth. Noncommunicable diseases (NCDs) (e.g., cardiovascular diseases, cancers, diabetes, and chronic respiratory diseases) and mental health conditions (e.g., Alzheimer disease and related dementias, depression, anxiety, autism spectrum disorders) are the world's leading cause of preventable illness, disability, and death. The World Health Organization (WHO) reports that NCDs are responsible for 74% of all annual deaths globally *(6)*. In the Global Burden of Disease Study 2019, cardiovascular diseases and cancers were the dominant contributors to the global burden of NMHs, accounting for 40% of NMH disability-adjusted life years (DALYs) (i.e., the number of years lost due to ill health, disability, or premature death) and 68% of NMH deaths, respectively *(7)*. Mental disorders account for roughly 8% of NMH DALYs globally. In South America specifically, NMHs cause 77% of all deaths and 72% of DALYs. In some countries those numbers are considerably higher: in Chile, for example, NMHs are responsible for 86% of deaths and 82% of DALYs.

A 2011 Pan American Health Organization brief outlined various interrelated factors that influence the rise of NMHs: biological and behavioral risk factors, environmental determinants, and global influences *(8)*. Behavioral risk factors include tobacco use, physical inactivity, an unhealthy diet (with disproportionate levels of fat, sugar, and salt), and the excessive use of alcohol. These choices affect biological risk factors, such as obesity and increased blood pressure and glucose levels. Lifestyle risks are further influenced by societal trends like urbanization, globalization, technological innovation, and economic development. These changes have reinforced sedentary lifestyles and poor diets, while failing to reduce – and even widening – inequalities in education, living and working conditions, and access to quality health care. Pollution, too, is a risk factor for neurological disorders like the loss of cognitive function and the prevalence of Alzheimer disease and related dementias, not to mention respiratory diseases. Finally, aging is another primary biological risk factor for NMHs.

South America is disproportionately affected by many of these determinants. In 2022, the prevalence of overweight adults was approximately 60% in the region, with every country examined being well above the global average of 43.5% *(9)*. The continuing rise in the number of overweight and obese adults in the region presages a corresponding increase in the future burden of NMHs *(10)*. Furthermore, the prevalence of physical inactivity in the region is among the highest reported worldwide (37% in Latin America and the Caribbean vs. a global prevalence of 31%) *(11)*. Pollution, too, is a major concern in South America, increasing the risk of stroke, heart diseases, respiratory diseases, and cancers. Thirty-nine percent of the total energy in the region is generated from fossil fuels, which has increased air pollution *(12)*. In 2020, exposure to harmful outdoor air particulate matter ($PM_{2.5}$ – i.e., particulate matter less than 2.5 micrometers in diameter), such as from exposure to biomass smoke, is estimated to have resulted in 37 000 deaths in South America, with the ensuing monetary loss equivalent to the average income of 2.9 million people in that year *(12)*. The continent can also expect a rise in NMHs with respect to its aging population. The population share aged ≥65 years in the region will more than double between 2020 and 2050, from 9% to 20%. Countries in the region will also see a significant increase in the median age and in the population share aged ≥80 years in that period *(13)*.

Rising NMHs will affect more than just population health. It is now well established that a healthy populace is important for a healthy economy *(2, 3, 14)*. Furthermore, healthy aging can also bestow all manner of economic benefits *(15)*. Conversely, poor population health is particularly detrimental to many of the prerequisites for economic growth. A negative impact of NMHs on a country's economic outlook can be expected for two main reasons. First, premature death and disability prevent individuals from participating in productive market activities, thereby reducing labor supply. The negative impact of morbidity may be due to early retirement, reduced working hours, or reduced productivity. For reference, currently, in South America, roughly 28% of NMH-related deaths occur among individuals aged 25–65 years, the period during

which people are generally at their most economically productive *(7)*. Second, unhealthy populations have less savings, investment, and physical capital accumulation because they are obligated to spend more on health care. All these mechanisms have compound effects, as reductions in aggregate income further reduce savings and investments, reinforcing the decline in economic growth. These effects are particularly harmful to economically vulnerable individuals and households.

However, the negative economic impacts of rising NMHs have not been fully recognized because, to date, estimates of the macroeconomic burden of NMHs are scarce. One early attempt estimated that a subset of NMHs, comprising cardiovascular disease, chronic respiratory disease, cancer, diabetes, and mental health disorders, would cost USD 47 trillion globally between 2010 and 2030, equivalent to 75% of global gross domestic product (GDP) in 2010 *(16)*. Another study, which focused on Latin America and the Caribbean, estimates that lost output associated with NMHs will amount to USD 18.45 billion in Jamaica (in 2015 USD), USD 81.96 billion in Costa Rica, and USD 477.33 billion in Peru between 2015 and 2030 *(17)*. A study of NMHs in the United States of America estimates that NMHs could cost USD 94.9 trillion (in constant 2010 USD prices) in 2015–2050, roughly equivalent to an annual tax of 10.8% on aggregate income *(18)*. China, the world's leading tobacco producer and consumer, is estimated to see a cost of USD 2.3 trillion (in constant 2018 USD prices) in lost productivity for the period 2015–2030 due to "tobacco-attributable NCDs" *(19)*. Overall, NMHs are estimated to result in losses of USD 7.7 trillion for China, USD 3.5 trillion for Japan, and USD 1 trillion for the Republic of Korea, from 2010 to 2030 *(20)*.

There is a lack of comprehensive estimates of the burden of NMHs in South America. Therefore, an analytical model was developed that projects the macroeconomic effects of NMHs over the period 2020–2050 in 10 South American countries: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela (Bolivarian Republic of). These countries have different economic outputs, life expectancy, and health expenditures due to differences in their population size, investments in human capital, and health system performance (Table 1).

TABLE 1. Country-specific economic, demographic, and health indicators

Country	Total GDP, PPP[a] (USD billions, constant 2017 international)[b]	GDP per capita, PPP[a] (USD, constant 2017 international)[c]	Population in 2020 (millions)[d]	Life expectancy at birth[d]		Life expectancy at age 65 years[d]		Health expenditure as a percentage of GDP[e]
				2020	2050	2020	2050	
Argentina	986	21 527	45.0	75.9	82.4	17.1	21.0	9.5
Bolivia (Plurinational State of)	97	8 052	11.9	64.5	73.6	11.1	15.0	6.9
Brazil	3 128	14 592	213.2	74.0	81.3	16.4	20.0	9.6
Chile	496	25 449	19.4	79.4	85.7	19.1	23.3	9.3
Colombia	755	14 649	50.9	74.8	82.3	16.7	20.9	7.7
Ecuador	190	10 669	17.6	72.2	82.7	15.1	21.5	7.8
Paraguay	92	13 688	6.6	73.2	77.6	16.5	18.4	7.2

TABLE 1. **Country-specific economic, demographic, and health indicators *(continued)***

Country	Total GDP, PPP[a] (USD billions, constant 2017 international)[b]	GDP per capita, PPP[a] (USD, constant 2017 international)[c]	Population in 2020 (millions)[d]	Life expectancy at birth[d]		Life expectancy at age 65 years[d]		Health expenditure as a percentage of GDP[e]
				2020	2050	2020	2050	
Peru	422	12 515	33.3	73.7	81.6	15.9	20.3	5.2
Uruguay	78	22 801	3.4	78.4	82.4	19.1	21.2	9.4
Venezuela (Bolivarian Republic of)	269[f]	7 704[f]	28.5	71.1	77.6	15.7	18.2	5.4

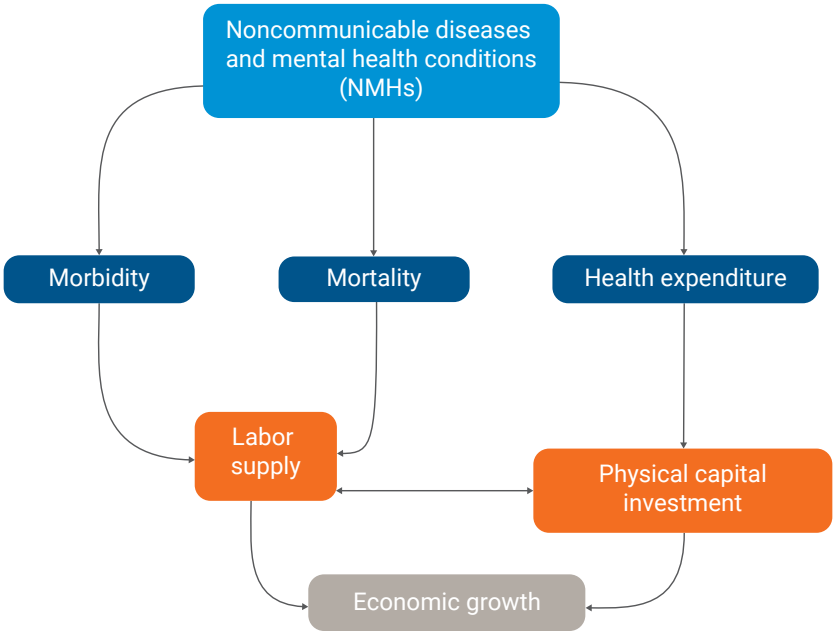
[a] PPP, purchasing power parity. [b] GDP in 2021, World Bank. GDP is measured in purchasing power parity. Values are approximated to the nearest billion. [c] GDP per capita in 2021, World Bank. GDP is measured in purchasing power parity. [d] 2022 World Population Prospects. [e] 2019 estimates, World Bank. [f] 2018 estimate from the Central Intelligence Agency's World Factbook.

Source: Ferranna M, Cadarette D, Chen S, Ghazi P, Ross F, Zucker L, et al. The macroeconomic burden of noncommunicable diseases and mental health conditions in South America. PLOS ONE. 2023;18(10):e0293144. Available from: https://doi.org/10.1371/journal.pone.0293144.

The model (Figure 2) accounts for the mortality and morbidity effects of NMHs on labor supply, the impact of treatment costs on physical capital accumulation, and variations in human capital by age and gender *(10)*.

The model assumes that NMHs affect mortality patterns over time, and therefore the number of working-age individuals. In addition, NMHs cause disabilities that further affect labor force participation.

FIGURE 2. **Diagram of the macroeconomic model**



Source: Adapted from Ferranna M, Cadarette D, Chen S, Ghazi P, Ross F, Zucker L, et al. The macroeconomic burden of noncommunicable diseases and mental health conditions in South America. PLOS ONE. 2023;18(10):e0293144. Available from: https://doi.org/10.1371/journal.pone.0293144.

Thus, a reduction in the prevalence of NMHs would positively affect the size of the labor force and thus increase GDP. Furthermore, it is assumed that NMHs negatively affect physical capital accumulation because savings may finance part of the treatment costs. A reduction in the prevalence of NMHs would thus save healthcare resources that can be invested in physical capital.

To estimate the macroeconomic cost of NMHs, GDP is simulated for each country over three decades (2020–2050) in two scenarios: a status quo scenario and a counterfactual scenario. In the status quo scenario, no intervention is implemented and prevalence of NMHs evolves as expected. In this scenario, GDP projections are taken from the International Monetary Fund *(21)*. In the counterfactual scenario, the complete elimination of NMHs at zero cost is assumed. The macroeconomic cost of NMHs is defined as the (discounted) cumulative difference in GDP across the two scenarios.

CHAPTER 1

The macroeconomic cost of noncommunicable diseases and mental health conditions in South America

The macroeconomic impact of NMHs in South America indicates significant economic shortfalls resulting from NMHs. Overall, the total GDP loss due to NMHs in South America amounts to USD 7.3 trillion (2022 international USD) over the period 2020–2050 *(10)*. This is equivalent to 4% of the total GDP in the region. In other words, if NMHs were eliminated, the annual GDP would be about 4% higher every year for 30 years. A substantial negative economic effect of NMHs was observed in all the South American countries studied, with economic shortfalls ranging from USD 88 billion in Uruguay to USD 3.7 trillion in Brazil (Figure 3). The highest output losses are in Brazil, Argentina, and Colombia, the countries with the region's largest populations and the greatest expected negative health impacts of NMHs, as measured in total DALYs (Figure 4).

FIGURE 3. **Country-specific gross domestic product (GDP) loss attributable to noncommunicable diseases and mental health conditions (NMHs) over the period 2020–2050 (USD billions, 2022 international)**

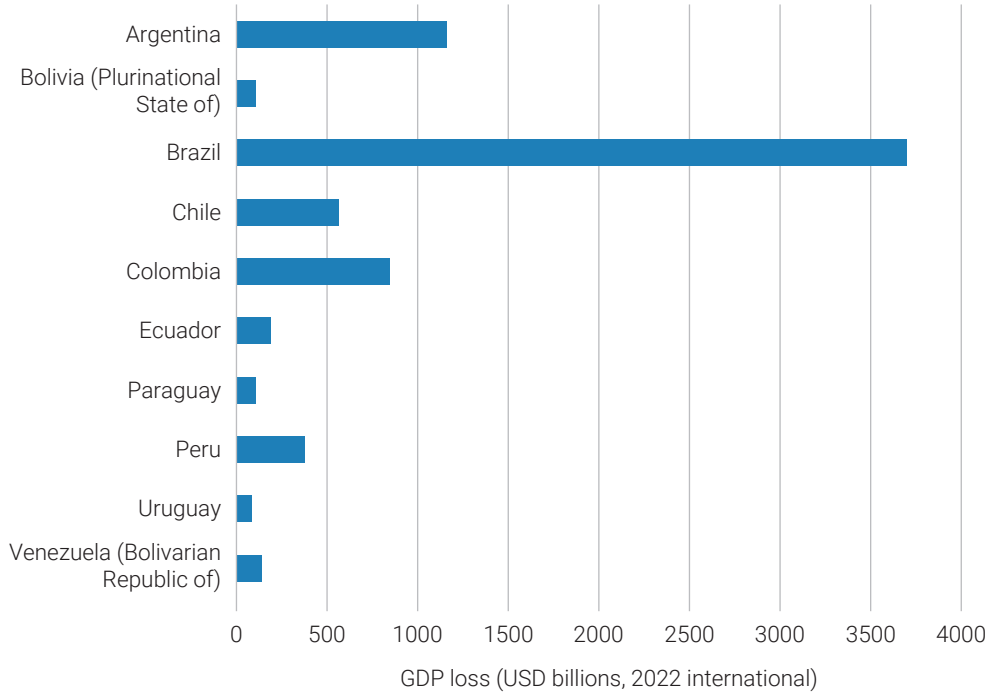
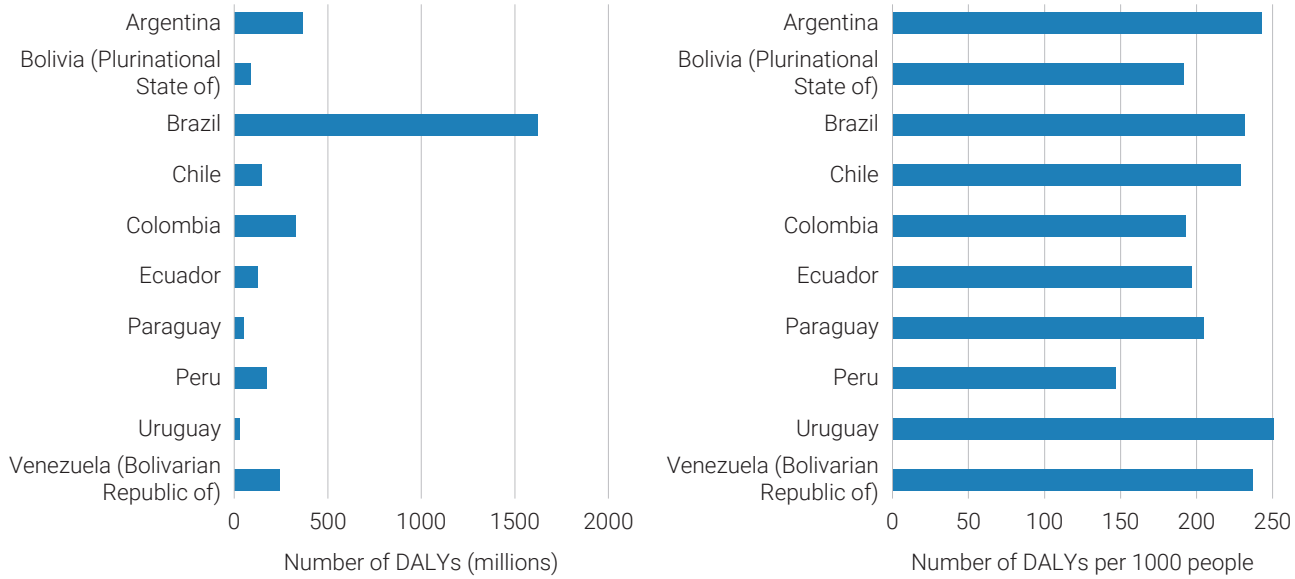


FIGURE 4. **Number of disability-adjusted life years (DALYs) caused by noncommunicable diseases and mental health conditions (NMHs) over the period 2020–2050**

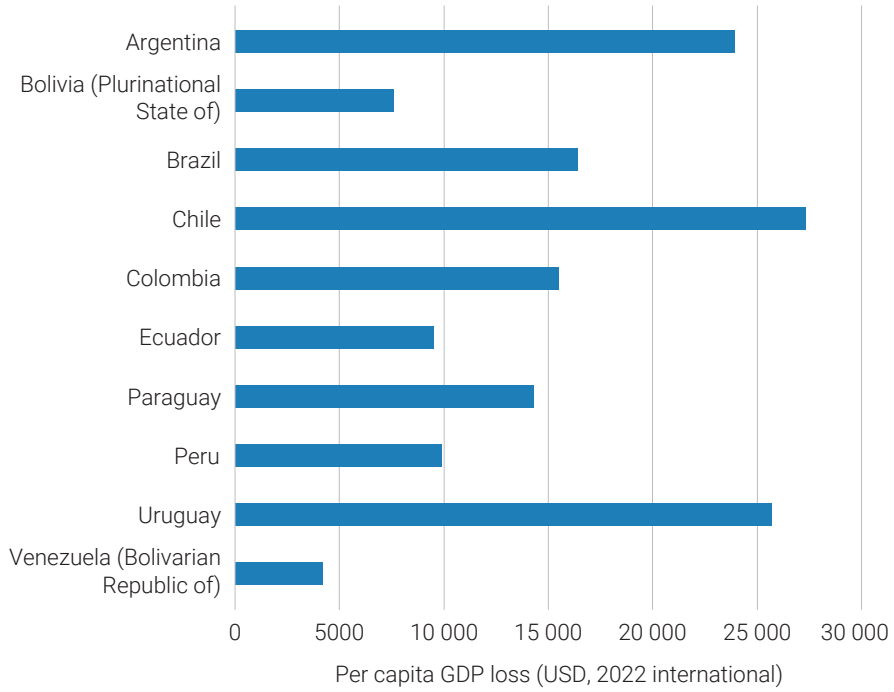


Note: The left-hand panel depicts the total number of DALYs due to NMHs over the period 2020–2050. The right-hand panel depicts the number of DALYs per capita.

The country-specific GDP losses attributable to NMHs in Figure 3 are sensitive to population size. Therefore, the per capita GDP loss attributable to NMHs was also computed, as it reflects the expected income gain that each individual would experience, on average, if NMHs were eliminated. After adjusting for population size, the largest macroeconomic cost of NMHs is in Chile, followed by Uruguay and Argentina, with the average per capita losses being USD 27 300 in Chile, USD 25 700 in Uruguay, and USD 23 900 in Argentina (Figure 5). These three countries have the greatest GDP per capita and high healthcare spending per capita, resulting in larger benefits from each death or nonfatal case of illness averted.

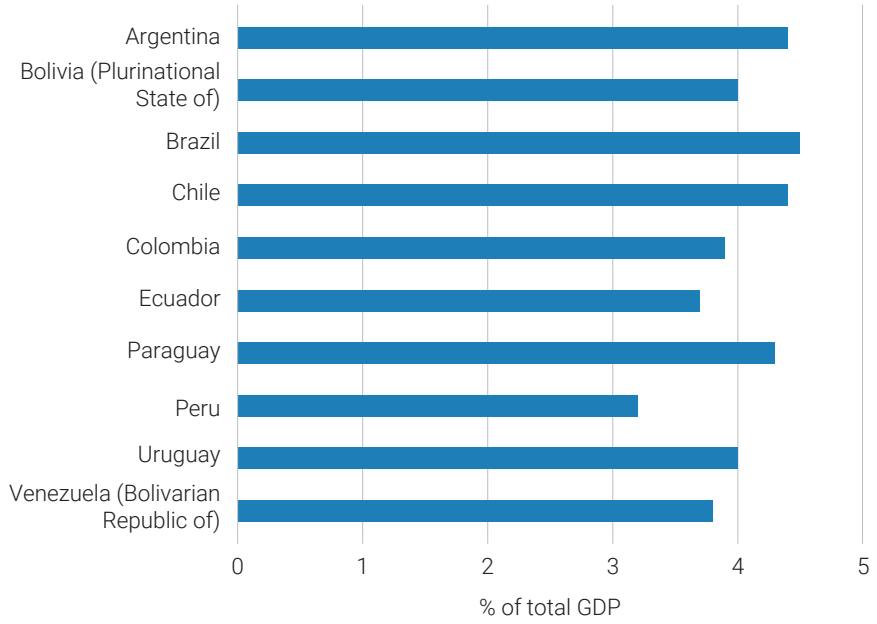
Figure 6 reproduces the same results in terms of percentage of total GDP over the period 2020–2050. This measure accounts for baseline differences in GDP and in growth potential. The greatest losses in terms of percentage of total GDP over the period 2020–2050 are in Brazil (4.5%), Chile (4.4%), and Argentina (4.4%), while the lowest economic burden is in Peru (3.2%). In other words, if NMHs were completely eliminated, then the annual GDP would be 4.5% higher in Brazil every year for 30 years, 4.4% higher in Chile and Argentina, and 3.2% higher in Peru. Several factors drive differences in country-level results, including the underlying disease burden, per capita GDP, population size, and healthcare costs. The relatively small number of DALYs per capita in Peru likely explains its lower macroeconomic burden (Figure 4, left-hand part), while high healthcare costs likely drive the larger burdens in Chile and Brazil (Table 1).

FIGURE 5. **Country-specific gross domestic product (GDP) loss per capita attributable to noncommunicable diseases and mental health conditions (NMHs) over the period 2020–2050**



Note: The GDP loss per capita over the period 2020–2050 has been computed by dividing the macroeconomic cost due to NMHs (Figure 3) by the mean population in the period 2020–2050.

FIGURE 6. **Country-specific gross domestic product (GDP) loss attributable to noncommunicable diseases and mental health conditions (NMHs) as a percentage of total GDP over the period 2020–2050**

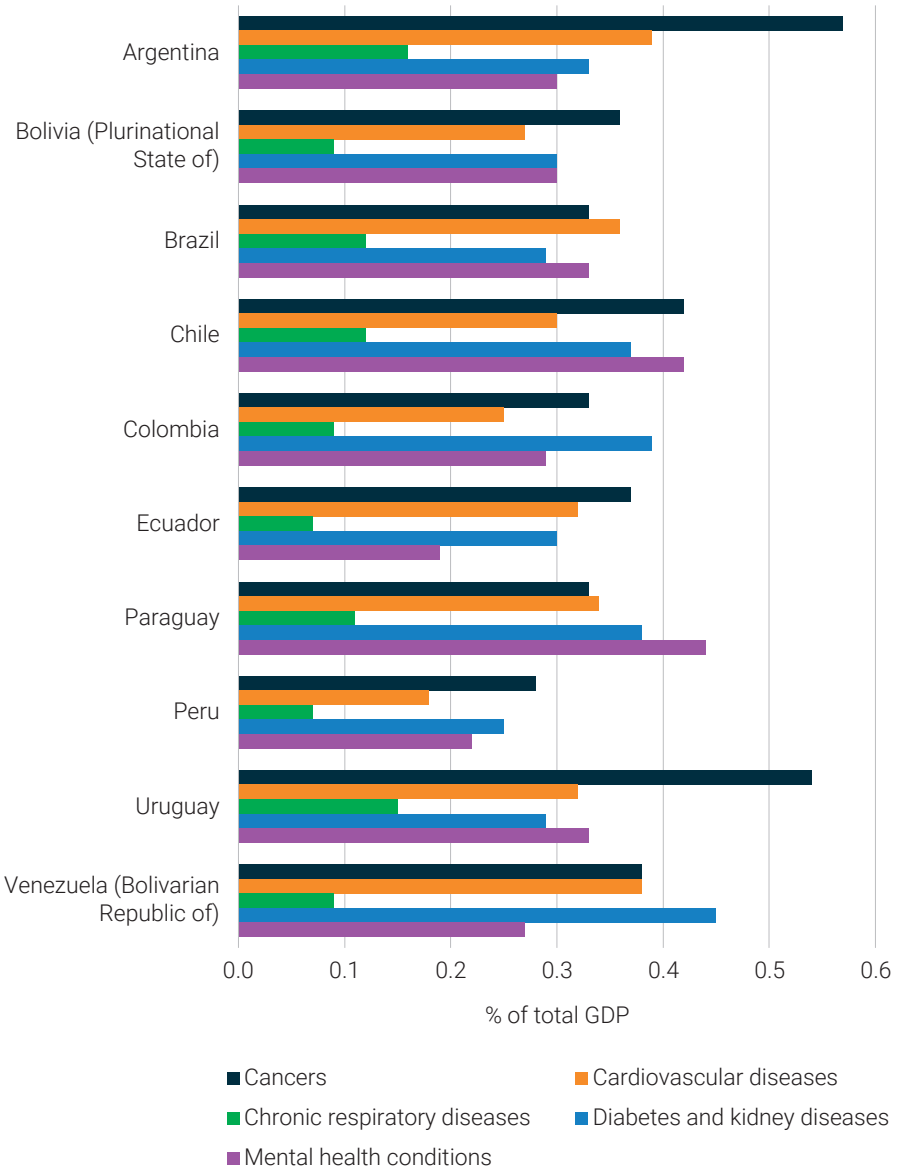


Note: The GDP loss as a percentage of total GDP over the period 2020–2050 has been computed by dividing the macroeconomic cost due to NMHs (Figure 3) by the discounted sum of annual GDP in the status quo scenario.

To put these numbers in context, the estimated annual increase in GDP following the hypothetical elimination of NMHs is virtually equivalent to what countries spend annually on education. To give one example, in 2020, Paraguay spent 3.3% of GDP on education; the GDP gain from NMH elimination (4.3%) could fund – and increase – education expenses. The GDP gain is also about fourfold what Argentina and Brazil spent in 2021 on public and publicly guaranteed debt service (respectively, 1.2% and 1.4%). Thus, reducing or eliminating NMHs would represent a considerable source of potential revenues for these countries.

Figure 7 breaks down the GDP loss attributable to leading NMH types (cancers, cardiovascular diseases, chronic respiratory diseases, diabetes

FIGURE 7. **Country-specific gross domestic product (GDP) loss attributable to five leading noncommunicable diseases and mental health conditions (NMHs) in South America during 2020–2050 (as a percentage of total GDP for each country)**



and kidney diseases, and mental health conditions) over the period 2020–2050 (as a percentage of total GDP for each country). Among these conditions, cancers are the leading contributor to the GDP loss in most countries. The expected cost of cancers ranges from 0.57% in Argentina to 0.28% in Peru. In Brazil, the highest economic burden is from cardiovascular diseases, while in Colombia and the Bolivarian Republic of Venezuela, the leading causes of NMH macroeconomic loss are diabetes and kidney diseases. Mental health conditions contribute substantially to the macroeconomic cost of NMHs, especially in Paraguay, with an economic burden equal to 0.44% of 2020–2050 GDP. The high burden associated with cancers is, in part, due to the relatively high health burden of cancers among working-age individuals, compared with other conditions *(7)*. The results, with respect to the burden of cancers, reflect the findings of a recent macroeconomic study that estimates that 29 cancers will cost Latin America and the Caribbean region 0.33% of annual GDP between 2020 and 2050 *(22)*.

Measuring the economic burden of NMHs in terms of GDP impacts is an imperfect measure, as it risks failing to account for certain economic impacts, such as productive nonmarket contributions of older people, like child care and volunteering *(23)*. This could potentially lead to the economic undervaluation of the health of older people, which is precisely what is being argued against here. In addition, GDP measures do not account for various dimensions of inequality in NMH prevalence and burdens, like socioeconomic status, ethnicity, and gender, or the distributional implications of health interventions. GDP measures also do not fully reflect the potential increase in poverty rates due to large healthcare costs and reduced productivity of individuals suffering from an NMH. Thus, this study and its model are intended to be just one component of a comprehensive effort to bolster health technology assessment to accurately capture the full societal and economic benefits of health. It is hoped that future research will address these shortcomings.

CHAPTER 2

Options for action

The negative economic impacts of NMHs, in terms of both the current and future burden, must be met with an immediate and commensurate response – chiefly, action to combat and reduce NMHs. While this presents an enormous challenge, it is not an insurmountable one; extensive research and policy analysis on reducing the health burden of NMH mean that many tools and guidelines have already been developed over the last few decades. Therefore, there are concrete policy steps with proven cost-effective and feasible actions. However, there is a difference between being applicable and being applied, and these measures must be implemented through collective policy and investment in health promotion, health technology, and institutional strengthening.

International organizations and national governments have adopted mandates and action plans that can be used by policymakers developing their own domestic strategies for NMH reduction. The United Nation's Sustainable Development Goal Target 3.4 calls for a one-third reduction in NMH-induced premature mortality by 2030 through the prevention and treatment of NCDs and the promotion of mental health *(24)*. Other Sustainable Development Goal targets address specific NMH risk factors, including alcohol and tobacco use, environmental risks such as pollution, and access to health care. In 2013 and again in 2019, the World Health Assembly laid out further targets under the Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020 (extended to 2030). These targets included a 30% reduction in tobacco use (worldwide by 2030), a 20% reduction in alcohol consumption, a 30% reduction in sodium intake, a 15% reduction in insufficient physical activity, a 25% reduction in raised blood pressure, a halt to diabetes and obesity, an 80% increase in the availability of essential medicines and basic technologies, and a 50% increase in coverage for drug therapy and counseling to prevent heart attack and stroke *(25)*.

The WHO Global Action Plan lays out objectives and a road map for Member States to prioritize and scale up NMH interventions in health and policy agendas *(26)*. The objectives include the following:

- Accelerate interventions to address the risk factors and underlying determinants of health of NMHs;
- Strengthen health systems, including expanding primary health care and universal health coverage;
- Strengthen capacity, leadership, governance, multisectoral action, and partnerships to address NMHs;
- Improve NMH data collection, monitoring and evaluation, and research, including on trends in and causes of NMHs.

Investment in health promotion

There are many categories of interventions (at various price points) that can reduce the risk factors and social determinants of NMHs. In 2024, the WHO Global Action Plan identified and recommended a set of "best buy" interventions and other recommended interventions to support health-seeking behaviors, lifestyle-related changes, and health-promoting environments, particularly in four key areas – tobacco use, unsafe consumption of alcohol, unhealthy diet, and physical inactivity (Table 2) *(27)*. A WHO global investment case estimated that following these

TABLE 2. **NCD best-buy interventions according to the World Health Organization**

Objective	Intervention area	Best buy and recommended interventions
Reduce modifiable risk factors for noncommunicable diseases (NCDs) and underlying social determinants through creation of health-promoting environments	Reduce tobacco use	• Increase excise taxes and prices on tobacco products • Implement plain/standardized packaging and/or large graphic health warnings on all tobacco packages • Enact and enforce comprehensive bans on tobacco advertising, promotion, and sponsorship • Eliminate exposure to secondhand tobacco smoke in all indoor workplaces, public places, and public transport • Implement effective mass media campaigns that educate the public about the harms of smoking/tobacco use and secondhand smoke
	Reduce alcohol use	• Increase excise taxes on alcoholic beverages • Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media) • Enact and enforce restrictions on the physical availability of retailed alcohol (via reduced hours of sale)
	Reduce unhealthy diet	• Reduce salt intake through the reformulation of food products and set target levels for salt in foods and meals • Reduce salt intake through establishing supportive environments in public institutions such as hospitals, schools, workplaces, and nursing homes • Reduce salt intake through mass-market campaigns • Reduce salt intake through pack labeling • Eliminate industrial trans fats through the development of legislation • Reduce sugar consumption through taxation on sugar-sweetened beverages
	Reduce physical inactivity	• Public education and awareness campaigns • Community-based education • Environmental programs aimed at supporting behavior change
Strengthen and orient health systems to address the prevention and control of NCDs and the underlying social determinants through people-centered primary health care and universal health coverage	Manage cardiovascular diseases and diabetes	• Drug therapy (including glycemic control for diabetes mellitus and control of hypertension) and counseling for individuals who have had a heart attack or stroke and those at high risk
	Manage cancers	• Human papillomavirus vaccination and cervical screening • Mammograms every two years for women aged 50–69 years • Chemotherapy and/or radiotherapy for cancer treatment
	Manage chronic respiratory diseases	• Asthma treatment • Access to cleaner stoves and cleaner fuels to reduce indoor pollution

Source: Adapted from World Health Organization. Saving lives, spending less: the case for investing in noncommunicable diseases. Geneva: WHO; 2021. Available from: https://iris.who.int/handle/10665/350449.

best-buy interventions would cost USD 0.84 per person per year worldwide, but would yield savings of USD 230 billion by 2030, or a USD 7 return on investment *(28)*.

Some best-buy interventions are designed to limit consumption of harmful goods through a variety of methods. These include meaningful excise taxes and prices on tobacco, alcohol, and processed foods. They also include requiring packaging to prominently display the health risks of products, with plain packaging standards to reduce a product's aesthetic appeal. Advertising bans can limit the exposure of consumers to unhealthy products, and mass-market education campaigns can improve public awareness. It should be noted that commercial stakeholders will continue business practices that prioritize profit over health at the cost of social, environmental, and equity impacts unless regulatory action is taken, and so policymakers may find themselves at odds with certain business interests.

It also bears noting that while these interventions can be implemented individually, there is a measurably greater impact when they are combined. To cite a number of country examples:

- Brazil has revamped its tobacco control laws over the past several decades with advertising bans, prohibition of flavored tobacco products, graphic warnings, and a tax of 80% on tobacco products. The country's smoking prevalence decreased from 23.9% in 2000 to 13.1% in 2020 *(27)*.
- In the case of tobacco use in China, it is estimated that a tax on cigarettes totaling 75% of their retail price (which is the tax rate recommended by WHO), along with mass-market education, could contribute to a saving of USD 1 trillion over 15 years *(19)*.
- The Russian Federation has cut alcohol consumption in half since 2003 through a combination of similar measures, including higher taxes, restrictions on the physical availability of alcohol, and marketing bans *(27)*.
- In 2018, Peru raised its sugar-sweetened beverage tax from 17% to 25% and began requiring warning labels on beverage and food packages high in sugar, saturated fats, and sodium *(29)*.

Some policymakers are going even further in their attempts to limit consumption of harmful goods. Governments in a number of countries, most notably New Zealand and the United Kingdom, have explored phasing out tobacco sales entirely *(30)*. Others have introduced regulations and bans on certain common additives in ultra-processed foods, requiring companies to reformulate certain products *(31)*.

Policymakers can also attempt to boost healthy behavior through health-promoting initiatives in built environments. WHO recommends 150 to 300 minutes of moderate aerobic physical activity per week for adults, a modest standard that 31% of adults failed to meet globally in 2022 *(11)*. Living near recreation areas and safe transportation spaces has been shown to contribute to increased physical activity in Latin American countries – people are more likely to be active if they have parks near them and if they can safely walk or cycle to work or school *(32)*. Greater accessibility to active commuting and leisure can be achieved through urban planning, transportation policies, and measures to reduce crime in public spaces. For example, in Bogotá, Colombia, Sundays and holidays are car-free days, a practice that also decreases pollution and road traffic fatalities. Other major cities, including in China, India, Indonesia, and Mexico, are also experimenting with this model *(33)*.

Initiatives that target infrastructure and accessibility can also address barriers to nutrition, such as lack of available and affordable food options in food deserts. In addition, lawmakers can work with public and private institutions and organizations to promote and support healthy food in schools, workplaces, and health and senior centers. Supplementary nutritional programs should prioritize groups particularly vulnerable to food insecurity, including mothers, young children, and older people. Beyond direct support for food-insecure populations, policymakers can facilitate intersectoral cooperation to improve food production, supply chains, and transportation *(34)*.

Health promotion and NMH risk reduction policies will also support healthy aging, which, in turn, combats NMH prevalence in older populations and makes good fiscal sense. *Healthy ageing for a healthy economy* calls for "thoughtful infrastructure investments … to build communities in which more numerous older people can contribute to society, receive health care, and lead autonomous, socially connected lives" *(14)*. These initiatives include expanding public transportation access, building a denser network of public restrooms, and enhancing infrastructure for driverless cars. These tangible steps could make public spaces more hospitable to older people while potentially preserving their independence, ensuring their continued participation in social activities, the labor market, and nonmarket productive ventures. The beneficial downstream effects of a lower NMH burden in the older population include greater financial autonomy, enhanced social connection, and better mental health, compounding into further NMH reductions.

Investment in technology

In an age when more people worldwide have access to mobile phones than safe water, continued investment in technological innovation is essential for combating NMHs. Prevention and early diagnosis are key methods for mitigating the impacts of these conditions, and technological tools can be cost-effectively employed toward deterrence and early detection of NMHs and their risk factors. Digital health solutions include wearable devices, health information technology, mobile health, and telemedicine, as well as artificial intelligence *(35)*. Wearable devices can help people with diabetes monitor their blood glucose levels more effectively, and help people with high blood pressure track their blood pressure and heart rate. However, access to these technologies remains limited, with advocacy and additional evidence required to justify expanded coverage. Therefore, more research and development is needed in innovation toward additional medical technologies. The COVID-19 pandemic served as a proof-of-concept trial for telemedicine, and mobile health is being expanded across the world. Finally, there is a drive to increase the role of artificial intelligence-driven advanced analytics and digital tools in medicine, for example to improve the efficiency and accuracy of diagnosis, and in low-resource settings with medical staff shortages.

To achieve optimal innovation in technology-based health care, national strategies for NCD control should also include strong data and research components to examine and monitor the country-specific trends and determinants of NMHs, and evaluate progress in prevention and control. Furthermore, while technologies have the potential to revolutionize care, policymakers must also support health system strengthening and integration with regard to new technology.

Health system strengthening

There are a number of areas in which health systems can be strengthened to combat NMHs. To start with, expanding health coverage and access to services remains a key mission for health policymakers in South American countries. As of 2022, one-third of people in Latin America and the Caribbean still faced barriers to accessing health care *(36)*. Initiatives to improve primary health care systems and integrate NMH prevention, diagnosis, and control services into primary health care are also crucial as the first line of defense against the rise in NMHs *(27)*.

However, while universal access to health treatment services is fundamentally necessary, more is needed to address the complex medical burdens of NMH. Access to equitable, high-quality health care is essential. The 2018 Lancet Global Health Commission report on high-quality health systems says that "Quality should not be the purview of the elite or an aspiration for some distant future; it should be the DNA of all health systems. Furthermore, the human right to health is meaningless without good quality care because health systems cannot improve health without it" *(37)*. The report calls universal health coverage a "starting point" for improving quality, noting that 8 million people in low- and middle-income countries die each year from preventable conditions. The report recommends four actions to raise quality:

- Adopt a shared vision of quality focused on continued improvement;
- Redesign health services with an emphasis on outcomes rather than geographical access;
- Embrace competency-based, patient-centric clinical education for the health workforce;
- Empower citizens to hold health systems accountable.

Improving the quality of care equitably while strengthening the delivery of health services would likely help reduce the NMH burden in South America. Another institutional overhaul required is that of the long-term care system. Rapid global population aging prefigures a rise in the demand for care for older people, both formal and informal. The current long-term systems across the globe are ill-equipped for this demand surge, which one study estimated will increase by 47% from 2020 to 2040 *(38)*. Furthermore, reducing the burden of NMHs through additional measures would reduce demands on formal and informal care systems.

Strengthening institutional capacities

An accelerated response is needed to reduce NMHs at the population level. To achieve this, health policy lawmakers and advocates must strengthen leadership and governance capacities. There are a number of approaches that can be used to achieve this, individually or in tandem *(39)*, including:

- Changing policies or practices. This may include organizational restructuring as well as developing processes for measurability and accountability at all levels of governmental authority.
- Providing skills and training. This includes technical expertise in the planning, implementation, and evaluation of new health programs and measures.
- Strengthening relationships between institutions. Programs may require multisectoral collaboration and partnerships between national and international actors and institutional, private, and civil society stakeholders.
- Supporting and enhancing community organizing efforts. Most healthcare delivery is at the local community level, and therefore policymakers must provide structure and support to the community-based groups implementing NMH reduction programs.

Given finite resources for health, any overarching policy discussion would be deficient without mentioning financing mechanisms for policy reforms. There are a number of options that can be explored, including reprioritization from the domestic health budget or from another budget within the national government. Excise taxes on harmful goods like tobacco and alcohol, which have already been discussed, can be a useful source of revenue for public health programs, and international funds and grants from bilateral agencies exist for reducing NMHs. Finally, public–private partnerships can be used to tackle NMHs, for example, through improving the health system by leveraging the strengths of the public sector (e.g., consumer trust) with the advantages of the private sector (e.g., implementation and operational efficiency).

CHAPTER 3

Conclusion

The estimates of the macroeconomic impacts of NMHs are disquieting. The steady rise of biological and environmental risk factors has created a ticking NMH time bomb in South America. If efforts are not made to counter the surge in NMHs, the consequences will be long-lasting health, economic, and social costs, and exacerbated societal inequalities. These threats can feel overwhelming, and calamitous outcomes may seem inevitable; however, this is not the case, as steps can be taken to mitigate both NMHs and their economic losses. Policymakers must be encouraged to take urgent action, which should include, for example, prevention, universal health care, long-term care reform, the overhauling of healthcare systems, more rigorous health technology assessment and innovation, and responsive healthcare policy. Ministers of health, along with ministers of finance, ministers of planning, and other governmental leaders in South America, are urged to heed this warning and devote the necessary resources – beginning immediately and with consistent, appropriate investment into the future – to address the challenge of NMHs.

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Noncommunicable diseases (NCDs) (e.g., cardiovascular diseases, cancers, diabetes, and chronic respiratory diseases) and mental health conditions (e.g., Alzheimer disease and related dementias, depression, anxiety, autism spectrum disorders) are the world's leading cause of preventable illness, disability, and death. This report examines the dangers posed by current and rising rates of noncommunicable diseases and mental health conditions (NMHs) in South America, beyond their health risks, by demonstrating their considerable negative impact on economic growth.

An analytical model was developed that projects the macroeconomic effects of NMHs over the period 2020–2050 in 10 South American countries: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela (Bolivarian Republic of). The results showed that the macroeconomic impact of NMHs in South America indicates significant economic shortfalls resulting from NMHs. Overall, the total gross domestic product (GDP) loss due to NMHs in South America amounts to USD 7.3 trillion (2022 international USD) over the period 2020–2050. This is equivalent to 4% of the total GDP in the region. In other words, if NMHs were eliminated, the annual GDP would be about 4% higher every year for 30 years. A substantial negative economic effect of NMHs was observed in all the South American countries studied, with economic shortfalls ranging from USD 88 billion in Uruguay to USD 3.7 trillion in Brazil. The highest output losses are in Brazil, Argentina, and Colombia, the countries with the region's largest populations and the greatest expected negative health impacts of NMHs, as measured in total disability-adjusted life years (DALYs).

The report also addresses the options for action in order to mitigate the impact in health and in the economy. Policymakers must be encouraged to take urgent action, which should include, for example, prevention, universal health care, long-term care reform, the overhauling of healthcare systems, more rigorous health technology assessment and innovation, and responsive healthcare policy. Ministers of health, along with ministers of finance, ministers of planning, and other governmental leaders in South America, are urged to heed this warning and devote the necessary resources – beginning immediately and with consistent, appropriate investment into the future – to address the challenge of NMHs.

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