



The 2023 South America report of The Lancet Countdown on health and climate change: trust the science. Now that we know, we must act

Relatório Lancet Countdown South America 2023 - saúde e mudanças climáticas: confie na ciência. Agora que sabemos, devemos agir

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ABSTRACT

The Lancet Countdown Report has made significant contributions by exposing the main impacts on environmental health caused primarily by increasingly intense anthropogenic action. Deforestation, increasingly uncontrollable forest fires, drought, fossil fuels, and nonrenewable energy contribute to the onset of climate change. This change is characterized by heat waves, increasingly intense storms, and floods that, consequently, compromise human health. The South America report of The Lancet Countdown highlights the alarming changes occurring in the continent and urges action to stop these changes while there is still time.

Keywords: Pollution, heat waves, human health, floods, climate change.

Introduction

Human health is the principal sphere in which climate change will affect the wellbeing of the population. These impacts will have economic implications that result from the individual losses: years of life lost, falling work productivity, and reduced capacity to create income, accumulate human capital, and invest in environmental education, resulting in

RESUMO

O Relatório *Lancet Countdown* tem feito importantes contribuições ao denunciar os principais agravos à saúde ambiental, graças à ação antropogênica, cada vez mais intensa. O desflorestamento, os incêndios florestais, cada vez mais incontrolláveis, a seca, o consumo de combustíveis fósseis, o uso de energia não renovável, propiciam o aparecimento de alterações climáticas caracterizadas por ondas de calor, tempestades cada vez mais intensas, inundações e o consequente comprometimento da saúde dos humanos. A versão *Lancet Countdown South America* apresenta de forma clara e chocante as alterações no continente e faz chamamento para que essas alterações sejam bloqueadas, pois ainda há tempo.

Descritores: Poluição, ondas de calor, saúde humana, enchentes, alterações climáticas.

reduced consumption, lower growth, greater poverty, and the need to allocate more resources, both public and private, to adapt the population to climate risks.¹

Anthropogenic climate change impacts South America significantly, triggering many environmental transformations of natural ecosystems and human

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societies. South American countries are highly vulnerable, on different levels, because of their limited preparedness and capacity to respond to the dangers of climate change and its impacts on human health and wellbeing, primarily because global estimates very often mask significant differences at regional and local levels.¹

Understanding the direct relationship and indirect routes of exposure to climatic dangers and the effects on health and wellbeing is essential to successfully conceive effective plans and policies for evidence-based mitigation and adaptation.¹

The 2023 Lancet Countdown South America (LCSA) is the result of collaboration between 21 academic institutions and United Nations (UN) agencies and 28 researchers covering a wide range of fields, to develop expertise and understanding of the links between health and climate change at the regional level.¹

The data and results for the 12 countries in the region presented in this report cover 25 indicators summarized in four key messages that provide evidence to support targeted response strategies to help decision-makers facing the consequences of climate change.¹

Although the countries of South America (SA) generate less than 10% of global emissions of greenhouse gases (GHG), they contribute to amplifying heat waves, droughts, forest fires, diseases transmitted by vectors, and other dangers. These adverse effects of climate change are accelerating and disproportionately impact the most vulnerable people in SA.¹

The LCSA analyzes and discusses current regional evidence on health and climate change in five major domains (i) Health risks, exposures, and impacts; (ii) Adaptation, planning, and resilience for health; (iii) The economic impact of climate change and its mitigation; (iv) The economic impact of climate change and finance; and (v) Public and political commitment. These domains will be presented below.¹

Section 1: Health risks, exposures, and impacts¹

Ambient temperature and heat waves are an elevated risk to the health of more vulnerable people, resulting in increased heat-related mortality.

The elevated danger of forest fires increases the risk of potentially fatal injuries, respiratory diseases, and corneal injuries, while loss of infrastructure,

interruption of essential services, and additional environmental degradation can cause indirect harm to health.

The high ambient temperatures threaten crop yields, with negative effects on the agricultural industry, on food security, and on nutrition. Cyclic climatic variability causes unique sub-regional scenarios that present situations of different climatic health risks.

Mental health and climate change

Climate change wears down the social, economic, and environmental determinants of psychosocial wellbeing, causing far-reaching and interrelated impacts on mental health.

These impacts range from common mental disorders to severe mental disorders and suicide, representing a greater threat to underprivileged populations in a context of historic social inequalities. From 1990 to 2019, tropical Latin America had the highest mental disease-related disability-adjusted life years (DALYS) in the world.

Climate change promises to work to amplify even further these preexisting risks to mental health, particularly among populations affected by structural inequalities and marginalized groups, creating an urgent need to implement monitoring of reliable global and regional indicators.

Section 2: Adaptation, planning, and resilience for health¹

Few countries in the region have conducted vulnerability analyses to guide adaptation interventions, which limits the scope for producing specific health policies and intervention policies and the capacity to allocate resources.

As a result, there is a profound lack of financing on the national level and limited implementation of adaptation actions, as demonstrated by some countries. Resources allocated to this purpose could spill over to many areas of society.

Science can support plans for adaptations for health, identifying best practices and barriers to implementation of action and also the benefits of encouraging more investigation.

Resilient health systems

Guaranteed equitable access to high quality health services is a basic human right. However, this right

is threatened by social inequalities and by health care disparities between and within the countries of South America, which primarily affect more vulnerable populations.

The growing impact of climate-related diseases on sensitive communities puts pressure on the region's already overloaded and fragmented health systems.

In South America, the priority is to guarantee universal access to health care; services essential to health installations, such as water and sanitation services, electricity supply, and Internet connectivity; a sufficient number of health professionals per capita, access for all to local health care; reinforcing climate-related technical capabilities on the local level, and education of local health care providers and health professionals; investing in reinforcement and adaptation of infrastructure for health and climate change.

Section 3: Actions for mitigation and health benefits¹

Accelerating actions to transition to a low carbon economy could yield significant benefits for South America in the short and long term. The health benefits of mitigation of climate change are a critical component and include: better health with healthier and carbon emission free diets; sustainable farming practices and land management; healthier and people-centered urban planning; reduced dependence on motorized transport; improved air quality; and reduced dependence on volatile international markets.

Loss of tree cover and climate change

South America is known for its important natural areas, such as the Amazon Forest and the Patagonian ecosystems. Trees and vegetation are key components in the carbon cycle and can help to prevent CO₂ from building up in the atmosphere, transforming it into biomass by photosynthesis.

Deforestation is a risk factor for health and can lead to: increased propagation of infectious diseases; exacerbated food insecurity in nearby communities; reduced local availability of potable water; and increased degradation and erosion of the soil, which in turn exacerbates dust pollution and increases the risk of flooding.

Intense production of basic goods associated with deforestation also leads to increased health risks,

including those resulting from use of agricultural chemicals and displacement of local and Indigenous communities.

Urbanization and expansion are other factors that drive loss of forests in the region. Sustainable urban planning can benefit mitigation of climate change while yielding benefits for health.

Section 4: The economic impact of climate change and its mitigation¹

Available data on the countries of South America suggest that the costs for health of climate change have increased over the last 20 years. Deaths linked to heat and air pollution have increased faster than the global averages.

The transition to a zero carbon economy, which is essential to protect human health, demands the political willpower to eliminate subsidies for fossil fuels in combination with well-planned policies to avoid possible energy price increases affecting vulnerable populations.

Such policies could include redirecting expenditure, implementation of green tax reforms, generation of new sources of income from fossil fuels, and increasing availability of and access to sources of accessible and carbon-free energy.

Understanding the costs related to transmission of dengue

Dengue is endemic in the greater part of South America; with 16 million cases recorded in 2011-2021. In the highly urbanized countries of the Southern Cone (Argentina and Uruguay) vulnerability to severe dengue cases has increased, disproportionately affecting children, with rising mortality and morbidity and overloading local health care systems.

Understanding and quantifying the economic costs of dengue in terms of the value of the mortality linked to the disease and of the cost of treatment is essential to support precise cost-benefit analyses capable of guiding public health policies for prevention and intervention to reduce propagation of the disease and lighten the socioeconomic burden of this climate-sensitive disease.

Section 5: Public and political commitment¹

Commitment from the multiple parties interested in health, especially governments, business,

communication media, the scientific community, and citizen communities is essential to fuel demands that measures be taken that are proportional to the risk, creating opportunities for acceptance of climatic interventions to prevent and reduce the current impacts on health.

In this respect, public opinion plays a fundamental role in influencing political decision-making. Communication media coverage of scientific and business commitments will reach its highest level in 2023.

However, despite progress, the level of commitment does not yet match the magnitude of the challenge. Indicators to measure public and governmental participation are the first step to understanding the true situation in South America. Access to information, especially for specific groups, is an essential step in reducing social inequalities and in empowering less favored populations to act.

Public commitment to the sanitary dimension of climate change

Measuring public engagement is essential to understand how people interact with crucial aspects of health and climate. However, quantifying public participation involves unique challenges because of cultural and regional differences.

Taking these first results into consideration, the LCSA research team recently published a series of articles about the gap in scientific information about health and climate change in the region. The thematic axes chosen were “Governance and public engagement research”, “Economy and finances”, “Mitigation”, “Adaptation”, and “Impacts”.²⁻⁷

The results of this new analysis demonstrated that South America suffers the impacts of climate change, including extreme climatic events and changes in temperature and rainfall precipitation patterns. These effects interact with the region’s existing social vulnerabilities, with severe consequences for the health and wellbeing of populations.

The authors highlight four principal messages from the series, which discussed important gaps from five different perspectives on health and climate. First, there is a general need for local analyses of priority subjects to support public policies, so that national and regional evidence can be included to adequately strengthen the responses, preparation, and adaptation to the dangers of climate change and

tackle relevant social vulnerabilities in the countries of South America.

Second, investigations of health and climate are undertaken separately and the intersection is unclear in terms of responsibility and leadership. Multidisciplinary research and actions are therefore essential. There is an urgent need for more action from the communication media and for academic and public coverage of the climate.

Third, climate investigation, policies, and measures should be reflected in effective financing plans, which are currently very limited. For adaptation and mitigation policies to be effective, they need a solid and long-term financing framework.

Finally, climate action is a huge opportunity for more healthy and prosperous societies in South America, taking advantage of the opportunities offered by political climate strategies to meet the challenges of climate change and deal with preexisting social inequalities.

Conclusions of The Lancet Countdown South América on health and climate change – 2023¹

This inaugural report of the LCSA follows 25 issues of health and indicators of climate change for 12 South American countries, centered on systematic monitoring of the effects of climate change on health and the responses at the regional level.

The risks for health resulting from climate change that affect South America include increased temperatures, heat waves, and more frequent and intense forest fires, lower agricultural yields, and greater exposure to climate-sensitive diseases,

South America has seen an accentuated increase in the climate’s suitability for dengue, which is a disease that constitutes an important public health problem in the region, with a mean increase of 35.3% in all countries, except Chile.

Although the entire population is affected to a certain extent, those families that are already living in poverty are more vulnerable, less resilient, and, therefore, more affected.

So far, knowledge of the quantifiable effects of climate change on the health of South American populations is limited among political leaders and the general public. Even in cases in which knowledge exists, action has not been proportional to the threats and opportunities.

Although several countries in South America include health in their National Contributions (NC), the actions are being taken slowly, if at all. This delay has contributed to thousands of deaths related to internal and external pollution by particulate material with diameter less than 2.5 µg (PM_{2,5}) and to carbon and to intensive and unhealthy diets throughout the region. Brazil is the only country that has drawn up a National Adaptation Plan (NAP), up to 2020, allocating appropriate resources to implement and execute it.

The slow pace of action on health and climate matters is reflected in low levels of commitment to interrelated issues from the principal parties involved in society. For a long time, the level of participation in involvement and coverage of health and climate changes in social communication media (which is crucial to provoke change on the individual and political levels) has been one of the lowest in the world.

This report highlights immediate threats to health, the lack of plans for adaptation for health, and the inadequate financing allocated by the different countries to deal with the burden of climate change. The current trajectory of climate inaction will only lead to even greater inequality, poverty, and vulnerability.

SA must step up its efforts, create resilient health systems, and prepare for the changes, demanding that local politicians construct a successful response, defining clear paths to face current challenges and those to come.

The message from the 28 LCSA investigators is clear. Trust the science. Now that we know what is happening, we must.

References

1. Hartinger SM, Yglesias-González M, Blanco-Villafuerte L, Palmeiro-Silva YK, Lescano AG, Stewart-Ibarra A, et al. The 2022 South America report of The Lancet Countdown on health and climate change: trust the science. Now that we know, we must act. *Lancet Reg Health Am.* 2023;20:100470.
2. Fernandez-Guzman D, Romina Lavarello R, Yglesias-González M, Hartinger SM, Rojas-Rueda D. A scoping review of the health co-benefits of climate mitigation strategies in South America. *Lancet Reg Health Am.* 2023;26:100602.
3. Palmeiro-Silva YK, Lescano AG, Flores EC, Astorga Y, Rojas L, Chavez MG. Identifying gaps on health impacts, exposures, and vulnerabilities to climate change on human health and wellbeing in South America: a scoping review. *Lancet Reg Health Am.* 2023;26:100580.
4. Palmeiro-Silva YK, Yglesias-Gonzales M, Blanco-Villafuerte L, Canal-Solis K, Neyra RC, Fernandez-Guzmán D, et al. The Lancet Countdown South America: The Lancet Countdown South America: increasing health opportunities by identifying the gaps in health and climate change research. *Lancet Reg Health Am.* 2023;26:100605.
5. Paz-Soldán VA, Valcarcel A, Canal-Solis K, Miranda-Chacon Z, Palmeiro-Silva YK, Hartinger SM, et al. A critical analysis of national plans for climate adaptation for health in South America. *Lancet Reg Health Am.* 2023;26:100604.
6. Sarmiento JH, Melo O, Ortiz-Alvarado L, Pantoja Vallejos C, Reyes-Mandujano IF. Economic impacts associated with the health effects of climate change in South America: a scoping review. *Lancet Reg Health Am.* 2023;26:100606.
7. Takahashi B, Posse CG, Sergeeva M, Salas MF, Wojczynski S, Hartinger S, et al. Climate change and public health in South America: a scoping review of governance and public engagement research. *Lancet Reg Health Am.* 2023;26:100603.

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