

TECHNICAL NOTE N° IDB-TN-2998

Social Determinants of Health: A Health-Centered Approach to Multi-Sectoral Action

Diana Pinto
William Savedoff
Sebastian Bauhoff

Inter-American Development Bank
Social Protection and Health Division

September 2024



Social Determinants of Health: A Health-Centered Approach to Multi-Sectoral Action

Diana Pinto
William Savedoff
Sebastian Bauhoff

Inter-American Development Bank
Social Protection and Health Division

September 2024



**Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library**

Pinto, Diana M.

Social determinants of health: a health-centered approach to multi-sectoral action / Diana Pinto, William Savedoff, Sebastian Bauhoff.

p. cm. — (IDB Technical Note ; 2998)

Includes bibliographical references.

1. Health-Social aspects-Latin America. 2. Health-Social aspects-Caribbean Area. 3. Health-Environmental aspects-Latin America. 4. Health-Environmental aspects-Caribbean Area. 5. Preventive health services-Latin America. 6. Preventive health services-Caribbean Area. 7. Disease management-Latin America. 8. Disease management-Caribbean Area. I. Savedoff, William D. II. Bauhoff, Sebastian. III. Inter-American Development Bank. Social Protection and Health Division. IV. Title. V. Series. IDB-TN-2998

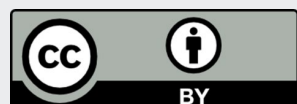
<http://www.iadb.org>

Copyright © 2024 Inter-American Development Bank ("IDB"). This work is subject to a Creative Commons license CC BY 3.0 IGO (<https://creativecommons.org/licenses/by/3.0/igo/legalcode>). The terms and conditions indicated in the URL link must be met and the respective recognition must be granted to the IDB.

Further to section 8 of the above license, any mediation relating to disputes arising under such license shall be conducted in accordance with the WIPO Mediation Rules. Any dispute related to the use of the works of the IDB that cannot be settled amicably shall be submitted to arbitration pursuant to the United Nations Commission on International Trade Law (UNCITRAL) rules. The use of the IDB's name for any purpose other than for attribution, and the use of IDB's logo shall be subject to a separate written license agreement between the IDB and the user and is not authorized as part of this license.

Note that the URL link includes terms and conditions that are an integral part of this license.

The opinions expressed in this work are those of the authors and do not necessarily reflect the views of the Inter-American Development Bank, its Board of Directors, or the countries they represent.





Social Determinants of Health

A Health-Centered Approach
to Multi-Sectoral Action



Diana Pinto
William Savedoff
Sebastian Bauhoff

Acknowledgments

We would like to thank Marcella Distrutti for her valuable inputs and guidance in developing this paper. Special thanks to Sofia Castro Vargas for providing material on case studies that were incorporated into this paper, and to Nora Ruth Libertun de Duren and Anamaria Nunez Zelaya for helpful comments. We would also like to acknowledge the work by many staff members of the Inter-American Development Bank who are not working directly on health system projects but who shared information from their sectors related to effects on health.

Inter-American Development Bank
1300 New York Avenue, N.W.
Washington, D.C. 20577
www.iadb.org

Copyright © 2024 Inter-American Development Bank ("IDB"). This work is subject to a Creative Commons license CC BY 3.0 IGO (<https://creativecommons.org/licenses/by/3.0/igo/legalcode>). The terms and conditions indicated in the URL link must be met and the respective recognition must be granted to the IDB.

Further to section 8 of the above license, any mediation relating to disputes arising under such license shall be conducted in accordance with the WIPO Mediation Rules. Any dispute related to the use of the works of the IDB that cannot be settled amicably shall be submitted to arbitration pursuant to the United Nations Commission on International Trade Law (UNCITRAL) rules. The use of the IDB's name for any purpose other than for attribution, and the use of IDB's logo shall be subject to a separate written license agreement between the IDB and the user and is not authorized as part of this license.

Note that the URL link includes terms and conditions that are an integral part of this license.

The opinions expressed in this work are those of the authors and do not necessarily reflect the views of the Inter-American Development Bank, its Board of Directors, or the countries they represent.





Executive Summary

The social determinants of health (SDH) are contextual factors, primarily social, that influence health outcomes directly but also affect health through their impacts on individual behaviors and environmental health risks. Access to good quality healthcare is important for improving and maintaining health. For this reason, progress toward Universal Health Coverage is a priority for all countries. Nevertheless, healthcare services on their own are not enough. Indeed, SDH account for between half and two-thirds of the disease burden experienced in most countries.

Social determinants of health include many factors for which proven cost-effective interventions are available. While some social determinants are costly or difficult to change in the short run, addressing others is both cost-effective and timely in their effects. For example, policies to reduce tobacco consumption could prevent a portion of the 8 million premature deaths each year attributable to smoking. Policies to eliminate household air pollution could prevent some 3.1 million premature deaths largely associated with respiratory illnesses. Interventions that improve nutrition and access to healthier diets can address preventable deaths, about 6 million each year, attributable to a range of diet-related non-communicable diseases.

Addressing social determinants improves health status and wellbeing and avoids unnecessary illnesses, especially among poorer and disadvantaged groups. This, in turn, reduces the overall pressure on healthcare services, reduces the associated financial burden of providing healthcare, and improves equity. Countries that successfully reduce the health risks associated with social determinants of health will experience less pressure on their healthcare systems, allowing them to make quicker progress toward Universal Health Coverage and toward achieving Sustainable Development Goal (SDG) 3 (“Ensure healthy lives and promote wellbeing for all at all ages”). They will find it easier to limit the financial cost of providing healthcare services while improving equity in the provision of healthcare services and, consequently, for contributing to equity in health outcomes.

Addressing social determinants of health also makes it possible for healthcare services to respond more effectively and equitably to future crises. A healthy social and environmental context helps countries before emergencies by giving healthcare



systems time to plan and prepare for crises, lowers the risks of transmission, and can forestall some crises when strong social capital and education encourages collaboration with public health policies. During a crisis, countries with healthier social and environmental contexts are less likely to have overloaded healthcare systems which allows them to respond to emergencies more quickly and with greater flexibility in addressing both emergency and non-emergency healthcare needs without overworking healthcare staff.

Health inequities are a consequence of multiple social and environmental factors, making multisectoral approaches necessary for promoting equity in health.

People in households with lower socioeconomic status tend to live shorter and less healthy lives than those in higher status segments of the population. This inequitable outcome results from multiple, mutually-reinforcing social and environmental factors including poor access to good quality education, housing, and food; greater exposure to air, water, and soil pollutants; and less voice and influence in the political decisions that affect their lives. These factors are reinforced across generations by limited resources for raising healthy, well-educated, and resilient children. Therefore, effective policies for promoting health equity use integrated strategies that are explicitly designed to achieve health goals in multiple sectors (as in the “Health in All Policies” approach).

Research has definitively demonstrated the impact of social and environmental factors on health and identified highly cost-effective interventions to improve SDH. The number and range of cost-effective interventions is quite large. This paper illustrates the benefits of addressing SDH and the availability of cost-effective interventions by presenting examples from early childhood development, the built environment, income, consumption, and aging. In each case, it appears that explicit attention to the health benefits of the policies amplifies the impact and quality of the program. Additional research is needed to identify policies that address multiple social and environmental factors, and to measure and monitor health equity on a national and global scale.

Key words: Social determinants of health; health inequity; health systems; multisectoral strategies; Latin America and the Caribbean

Jel Codes: I10; I14; I18



Resumen ejecutivo

Los determinantes sociales de la salud (DSS) son factores del contexto, principalmente sociales, que influyen directamente en la salud de las personas, pero que también la afectan a través de sus impactos en los comportamientos individuales y en riesgos ambientales para la salud. El acceso a una atención sanitaria de buena calidad es importante para mejorar y mantener la salud. Por esta razón, el avance hacia la cobertura sanitaria universal (CSU) es una prioridad para todos los países. Sin embargo, los servicios de salud por sí solos no son suficientes. De hecho, los DSS representan entre la mitad y dos tercios de la carga de morbilidad que se experimenta en la mayoría de los países.

Los determinantes sociales de la salud incluyen muchos factores para los cuales existen intervenciones cuya costo eficiencia ha sido demostrada. Si bien algunos determinantes sociales son costosos o difíciles de cambiar a corto plazo, abordar otros es costo eficiente y a la vez oportuno en sus efectos. Por ejemplo, las políticas para reducir el consumo de tabaco podrían prevenir una parte de las 8 millones de muertes prematuras que se producen cada año debido al tabaquismo. Las políticas para eliminar la contaminación del aire en los hogares podrían prevenir unas 3,1 millones de muertes prematuras asociadas en gran medida a enfermedades respiratorias. Las intervenciones que mejoran la nutrición y el acceso a dietas más sanas pueden abordar muertes prevenibles, alrededor de 6 millones cada año, atribuibles a una serie de enfermedades no transmisibles relacionadas con la dieta.

Abordar los determinantes sociales mejora el estado de salud y el bienestar y evita enfermedades innecesarias, especialmente entre los grupos más vulnerables. Esto, a su vez, reduce la presión general sobre los servicios de salud, la carga financiera asociada a la prestación de servicios, y mejora la equidad. Los países que logren reducir los riesgos para la salud asociados con los determinantes sociales de la salud experimentarán menos presión sobre sus sistemas de salud, lo que les permitirá avanzar más rápidamente hacia la cobertura sanitaria universal y hacia el logro del Objetivo de Desarrollo Sostenible (ODS) 3 ("Garantizar una vida sana y promover el bienestar de todos en todas las edades"). Les resultará más fácil limitar el costo de la prestación de servicios de salud y, al mismo tiempo, mejorar la equidad en la misma y, en consecuencia, contribuir a la equidad en los resultados de salud.

Abordar los determinantes sociales de la salud también permite que los servicios de salud respondan de manera más eficaz y equitativa a futuras crisis. Un contexto social y ambiental saludable ayuda a los países al brindarles tiempo para planificar y prepararse ante una emergencia, reduce los riesgos de transmisión y puede prevenir algunas crisis cuando el capital social y la educación es capaz de fomentar la colaboración con las políticas de salud pública. Durante una crisis, los países con contextos sociales y ambientales más saludables tienen menos probabilidades de tener sistemas de salud sobrecargados, lo que les permite responder ante las emergencias con mayor rapidez y flexibilidad para abordar las necesidades de salud tanto de emergencia como de rutina, sin sobrecargar al personal sanitario.

Las inequidades en materia de salud son consecuencia de múltiples factores sociales y ambientales, lo que hace necesario adoptar enfoques multisectoriales para promover la equidad. Las personas que viven en hogares con un nivel socioeconómico más bajo tienden a vivir vidas más cortas y menos saludables que las que pertenecen a segmentos de la población de mayores recursos. Esto es el resultado de múltiples factores sociales y ambientales que se refuerzan mutuamente, como el acceso deficiente a la educación, vivienda y una alimentación de buena calidad; una mayor exposición a contaminantes del aire, el agua y el suelo; y una menor participación e influencia en las decisiones políticas que afectan la calidad de vida. Estos factores se refuerzan a lo largo de las generaciones por los recursos limitados que se tienen para criar niños sanos, bien educados y resilientes. Por lo tanto, las políticas eficaces para promover la equidad en materia de salud utilizan estrategias integradas que están diseñadas explícitamente para alcanzar objetivos de salud en múltiples sectores (como en el enfoque de “Salud en todas las políticas”).

La literatura ha demostrado el impacto de los factores sociales y ambientales en la salud y ha identificado intervenciones costo eficientes para mejorar los determinantes sociales de la salud. La cantidad y la variedad de estas intervenciones es bastante grande. Este artículo ilustra los beneficios de abordar los determinantes sociales de la salud y la disponibilidad de intervenciones costo eficientes presentando ejemplos de desarrollo infantil temprano, el entorno, ingreso, consumo y envejecimiento. En cada caso, parece que la atención explícita a los beneficios para la salud de las políticas amplifica el impacto y la calidad de los programas. Se necesitan investigaciones adicionales para identificar políticas que aborden múltiples factores sociales y ambientales, y también para medir y monitorear la equidad en salud a escala nacional y mundial.



Contents

1. Introduction	6
2. What do we know about social determinants of health?	8
How much do social determinants affect health?	12
Frameworks for conceptualizing SDH	15
3. Improving health and health equity through policies that address SDH: selected cases	21
Early Childhood Development	22
The built environment and urban planning	27
Poverty and inequality	37
Harmful consumption	41
Social determinants specific to ageing	45
4. Multisectoral approaches	51
5. Conclusions and recommendations	55
References	59

1

Introduction

The significance of Social Determinants of Health (SDH) has been known for centuries, as demonstrated by intellectual debates since antiquity, public works like sanitation, and social policies like education. In the 20th century, research definitively established the impact of SDH on population health and health equity, making definitions more precise, identifying factors, and demonstrating the multisectoral nature by which social determinants combine to affect population health.

In the last two centuries, humanity has made enormous progress in health, almost doubling longevity in countries around the world (Fogel 2012). Most of those gains have come from rising standards of living, improved nutrition, better sanitation and potable water, which have reduced exposures to infectious disease and strengthened individual immune responses. Basic medical interventions like vaccinations and treatment of infections with antibiotics have also made significant contributions, but it has been the social, economic, and environmental factors which were initially of greatest significance.

Today, while much of the world enjoys better health than in the past, the remaining burden of poor health falls disproportionately on people with lower socioeconomic status. Most diseases and injuries are concentrated among those who lack access to safe water and sanitation, education and literacy, adequate incomes, nutritious foods, clean air, social services, safe transportation, or opportunities for socializing, among many other factors. The health conditions of those with and without such social determinants of health are glaring, not just between high- and low-income countries, but also between people living in small census areas within the same cities.

The goal of this paper is to present evidence on the cost-effective nature of many approaches that can improve health by addressing SDH, with the intention of drawing the attention of policymakers, those who advise them, and the international agencies that support them to these often-neglected opportunities. It introduces the main findings of research on SDH, its impact on population health and health equity, and the imperative of considering policy action through a multisectoral lens.

After presenting a framework for analyzing SDH, it focuses on five examples within the larger body of work on SDH related to: early childhood development, the built environment, income, consumption, and aging. For each category, the paper presents recent evidence on how these social determinants affect health and what kinds of policies and interventions have been identified as effective, concluding with an example and discussion of how a multisector approach is essential and more efficient than addressing any factor on its own.

2

What do we know
about social determinants
of health?

The current framing and understanding of social determinants of health, and subsequent international agreements originated with the UK Whitehall studies in the late 1960s (see Table 1). Research on the apparently homogeneous class of men serving in the British government bureaucracy yielded surprisingly large health gradients that were associated with socioeconomic variables such as education, social status, and location in the bureaucratic hierarchy. Subsequent research has also identified large health inequities across populations by location, ethnicity, race, education, income, and other socioeconomic dimensions demonstrating that these inequities can be linked to a variety of SDH.

These findings have reverberated in the global policy arena. Several major commissions led to a series of global declarations and resolutions regarding SDH. These included the Rio Declaration in 2011 which was formally endorsed by the 65th World Health Assembly in 2012. Also in 2012, the UN General Assembly endorsed policies to address SDH through cross-sectoral policies.

TABLE 1

Selected events in research and international agreements on SDH

1967	UK Whitehall study demonstrates a health gradient based on social status—higher SES predicts better health; lower SES predicts poorer health.
1985	US Department of Health and Human Services convenes a Task Force on Black and Minority Health and submits the first-ever consolidated American report on minority health.
1999	Michael Marmot and Richard Wilkinson publish “Social Determinants of Health”
2005	Marmot leads the World Health Organization (WHO) global Commission on SDH.
2008	Commission on the Social Determinants of Health publishes “Closing the Gap in a Generation”
2010	WHO issues Adelaide Statement on Health in All Policies (HiAP)
2010	WHO provides a “Conceptual Framework for Action on the Social Determinants of Health”,
2011	Rio Political Declaration on Social Determinants of Health is adopted by 125 member states during the WHO World Conference on SDH
2011	The United Nations (UN) General Assembly adopts the Political Declaration on the Prevention and Control of Non-communicable Diseases calling for multisectoral approaches to health at all government levels and addressing the underlying determinants of health.
2011	Marmot, Allen, Bell, and co-authors publish “Building of the global movement for health equity: from Santiago to Reio and Beyond” (Lancet 2012;379:181-8).
2012	65th World Health Association endorses the Rio declaration and its recommendations.

2012	UN Resolution on Global Health and Foreign Policy calls on member states and the UN to accelerate universal health coverage and implement broad public health measures addressing SDH through multisectoral policies.
2013	WHO eighth Global Conference on Health Promotion is dedicated to HiAP.
2014	Lancet-University of Oslo Commission of Global Governance for Health calls for global political solutions that go beyond the health sector alone, and beyond technical solutions and unilateral national action.
2021	Social determinants of health: Report by the Director General, World Health Organization to Executive Board (EB148/24)
2024	World Health Organization releases an operational framework for monitoring social determinants of health equity and actions addressing them.
2024	UNAIDS Executive Director and Inequality Council urge G20 to back bold network on medicine production and address the social determinants of pandemics.

The 2012 UN Resolution on Global Health and Foreign Policy specifically called for **multisectoral** approaches to address the “social, environmental and economic determinants of health, with a view to reducing health inequities” [UN General Assembly Resolution 2012].¹ The importance of multisectoral approaches is, perhaps, the most significant contribution to new work on the interventions required to address SDH.

While individual factors such as education or air pollution clearly affect population health, the research on SDH has consistently shown substantial and reciprocal associations between social determinants. For example, compared with richer households, people with lower incomes are likely to be less educated, live in more polluted environments, pass on fewer assets to their children, and so on. These associations are not random. For example, housing prices are affected by environmental quality, including proximity to factories, airports and quarries, leading those with fewer resources to self-select toward these unhealthy areas which may provide the only available affordable housing in an urban area.

The clustering of unfavorable social determinants among people with lower socio-economic status is perhaps the greatest challenge for improving population health, ensuring that healthcare systems can provide universal coverage at a reasonable cost, and preparing societies to prevent or mitigate the impact of pandemics (See Box 1).

¹The text of item 4 in the resolution is: “Also invites Member States to adopt a multisectoral approach and to work on determinants of health within sectors including, as appropriate, through the health-in-all-policies approach, while taking into consideration the social, environmental and economic determinants of health, with a view to reducing health inequities and enabling sustainable development, and stresses the urgent need to act on social determinants for the final push towards the achievement of the Millennium Development Goals.”

BOX 1

Social Determinants of Health and the Next Pandemic

“SARS-CoV-2 thrived on inequality” (Horton R. 2022)

Addressing social determinants of health may not be an obvious part of pandemic preparedness, but it is essential. The character and distribution of social determinants in society are systematically less favorable to people with lower socioeconomic status, making these groups more vulnerable when an epidemic or pandemic occurs. Thus, addressing inequities may be one of the most significant ways a country can prepare for future health emergencies. The experience with COVID-19 demonstrated these relationships vividly, as concisely stated by the editor of *The Lancet* above.

The greater the inequality within a country, the greater were excess deaths during the first 2 years of the COVID-19 pandemic (McGowan et al. 2022; Varkey 2022). This relationship probably reflects the way deep disparities across societies are linked to unequal exposure to social and environmental health risks, increased vulnerability to disease, and differential access to health-promoting and care measures.

These disparities are apparent in work and household settings where differential exposure to COVID-19 occurred (IDB 2022a). For example, workers in the informal economy were more likely to acquire and spread the virus due to the nature of their working conditions (e.g., street vendors and market traders interact with many people daily in public spaces with poor sanitation). Similarly, overcrowded urban neighborhoods, where physical distancing was impossible, had higher infection rates. During the pandemic, areas with the highest levels of overcrowding had 94% excess mortality in Lima and 16% in Santiago when compared to areas with the lowest levels (IDB 2022). Inadequate access to “water, sanitation and hygiene (WASH) services also increases contagion risks by making it difficult to implement preventive measures like handwashing (Bilal et al., 2021). Furthermore, the poor were more exposed to infection by COVID-19 because they had more limited access to information and government support and experienced more delays in obtaining vaccines.

Of the possible causal mechanisms that increased vulnerability to severe COVID-19 among low socioeconomic status groups, one was weakened immune systems as a result of stress-imposed financial hardship. A second causal mechanism was higher prevalence of comorbidities such as hypertension and diabetes which are risk factors for death from COVID-19. Third, people of low socioeconomic status tend to consult at more advanced stages of illness due to difficulties in accessing health care services (Patel et al. 2020).

Therefore, there is a strong case for integrating initiatives to address inequality in pandemic preparedness planning. Awareness and understanding vulnerabilities by socioeconomic status are the first step. Then, identifying and implementing policies to address social determinants of health that underlie those vulnerabilities, differentiated by socioeconomic status, can enable healthcare systems to respond more effectively and equitably to future crises. A healthy social and environmental context allows countries to prepare and plan before emergencies, reducing transmission risks. It can also potentially prevent or mitigate crises by maintaining strong social capital and education in ways that promote cooperation with public health policies. Finally, during a crisis, countries with healthier social environments are less likely to experience overwhelmed healthcare systems. In this way, they can respond more swiftly and flexibly to both emergency and routine healthcare needs without overburdening staff.



How much do social determinants affect health?

Due to its multisector nature and its inherent complexity, it is impossible to precisely estimate the contributions of different social and environmental factors to health and health equity. Measuring the contributions of one factor (for example, air pollution) is difficult to separate from other interacting conditions (for example, prior exposures, nutrition, smoking, exposure to respiratory illnesses). Because it is not feasible to precisely and causally establish how much each SDH contributes to health outcomes, research has focused instead on comparing subpopulations exposed to different conditions. In this way, researchers have been able to provide plausible measures of the relative contributions of different factors to population health.

Using such methods, researchers have developed enough evidence to demonstrate that even though access to good quality medical care is important to population health, social determinants account for a larger share of a person's chances for a healthy life (see Figure 1). While estimates vary considerably, it appears that SDH accounts for most of the differences in health status, with access to good quality medical care accounting for the remaining 15 to 45 percent.

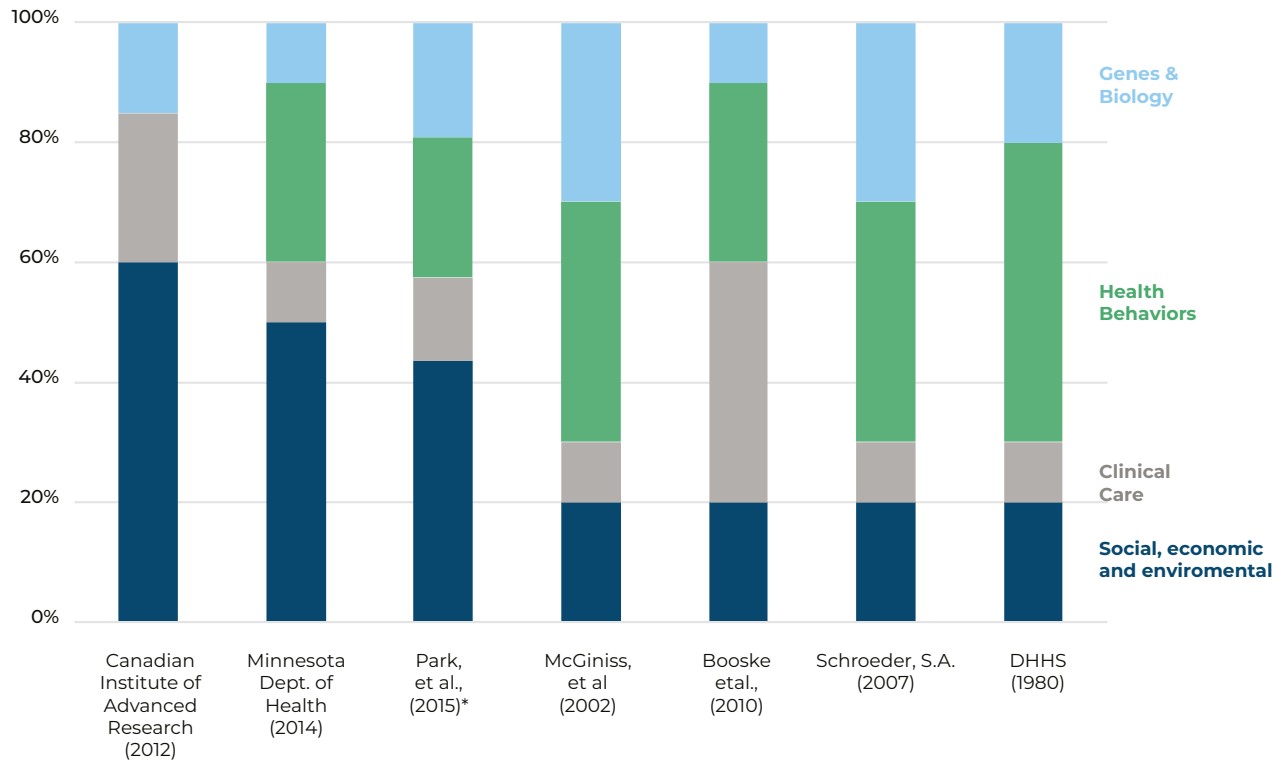
For example, a study of US counties found that clinical care could account for 16 percent of the variation in health outcomes, while socioeconomic factors accounted for 47 percent, health behaviors for 34 percent, and physical environment for 3 percent (Hood et al., 2016). The Canadian Institute of Advanced Research cited a parliamentary report attributing up to 45 percent of population health gains to health care and 15 percent to genetic factors. Another 50 percent was due to socioeconomic factors and 10 percent to environmental factors (Keon and Pepin 2009). Two additional studies estimate health care contributes 15 to 43 percent to variations in health status, with social determinants accounting for the remaining 85 to 57 percent (cited in Donkin et al 2015).²

Although SDH are often highly correlated with one another, the importance of SDH is often evident in the variation in outcomes related to a single factor, such as income. Figure 2 shows estimated average life expectancies for 2022 for all LAC countries by

² SDH categories are not standardized across studies but do overlap substantially. Clinical factors are generally measured by access to medical care. Definitions of the physical environment tend to include air, water, and soil quality, housing, and transportation infrastructure. Behavioral factors generally include smoking, alcohol use, diet, exercise, and sexual activity. Finally, socioeconomic factors include income, employment, and education.

FIGURE 1

Health outcomes attributable to different factors, selected studies

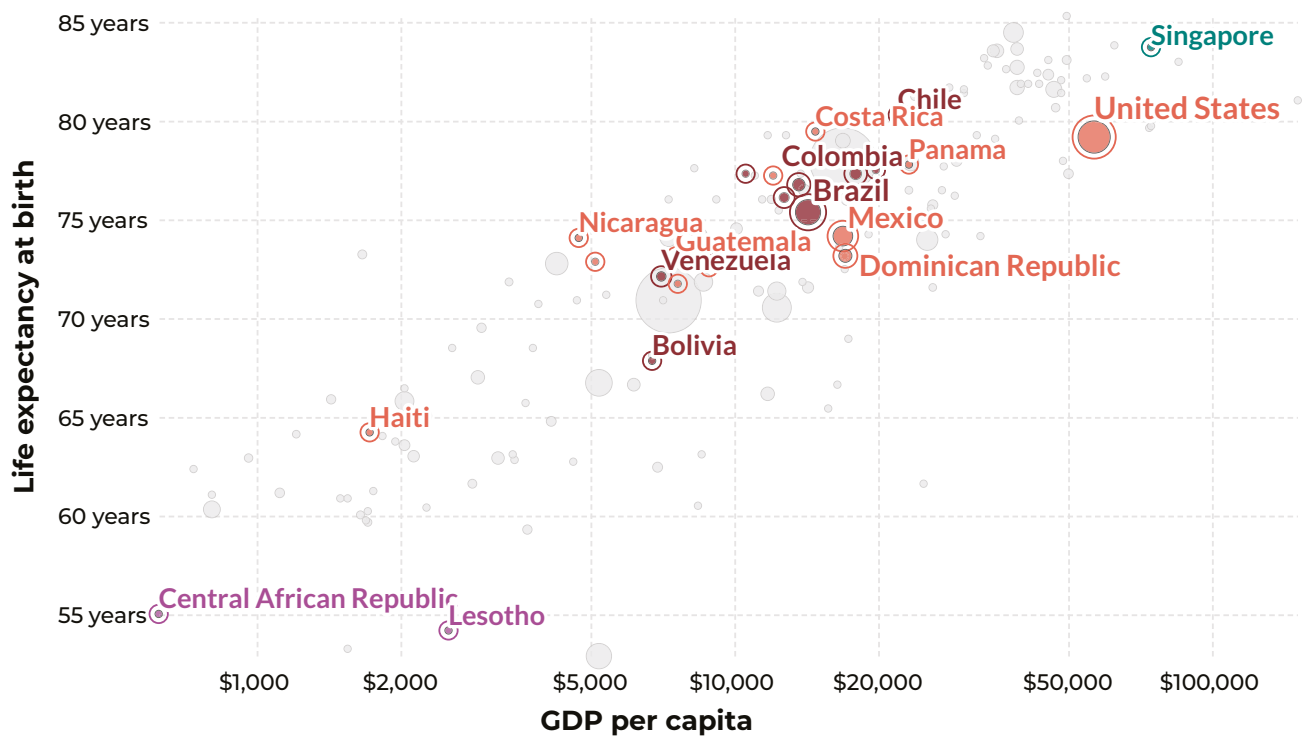


GDP per capita, and the two highest/lowest worldwide). Average life expectancy at birth is around 85 years in Japan and Singapore, but less than 65 years in Lesotho, Central African Republic and Haiti. In addition to the cross-country variation by income, there are large variations in life expectancy between countries on the same income level. These may relate to other factors – including other SDH – along with the distribution and use of resources.

Variations **within** countries are also surprisingly large. Within the United States, life expectancy varies significantly by ethnicity/race. Life expectancy in 2019 was 85 years for Asian-Americans; almost 79 years for those considered “white”; and about 75 years for African-Americans (GBD US Health Disparities Collaborators 2022). Life expectancy also varies significantly within Latin American cities. For example, life expectancy in Panama City, Santiago (Chile), Mexico City, Belo Horizonte, and Buenos Aires is 2 to 10 years longer in the highest compared to the lowest socioeconomic areas; while in San José, Costa Rica, the gap is less than one year [Bilal et al., 2019].

FIGURE 2

Variation in estimated average life expectancy by per capita GDP, LAC and selected countries, 2019



Source: Our World in Data. Circles sized to population.

These large intra-country differences are related to the combined impact of SDH, such as income-earning opportunities, access to basic infrastructure and public services, good quality education, stigmatization and discrimination, and environmental quality among other factors. For example, in Latin America and the Caribbean, education interacts with discrimination, income, access to public services and exposures to contaminants, affecting a wide range of health risks and outcomes. Compared to more educated people, those who only completed primary education are at greater risk for a variety of non-communicable diseases due to their higher prevalence of obesity (in Peru and Guyana) and higher cholesterol (in Argentina). Throughout the region, under-5 mortality for children is also higher among families with mothers who only completed primary school compared to those with more schooling (Busso and Messina, 2020). This is not evidence of the impact of schooling alone, but rather schooling along with numerous other SDH which are related to and interact with educational attainment.



Frameworks for conceptualizing SDH

Several frameworks have been developed to organize work on SDH, facilitate research, and guide policymaking. The key commonality in all these frameworks is an effort to organize the many social and environmental factors that affect health into a coherent and comprehensive model. They also tend to demonstrate that improving population health requires successful coordination or integration of public and private actions in a variety of spheres. In addition, they often emphasize the existence of inequities in health outcomes generated by unequal exposure to social and environmental health risks and differential access to health-promoting social determinants such as, for example, education, nourishing food, safe neighborhoods, and quality housing.

Beyond these commonalities, SDH frameworks serve a variety of uses and are oriented toward different audiences. For this paper, we were interested in an SDH framework that would be:

- **Comprehensive:** in sense of having a “place” for all potential social determinants
- **Conceptually clear:** in sense of providing distinct intuitive categories
- **Parsimonious:** in the sense of using few enough categories or relationships to be practical and useful
- **Practical:** in the sense of having clear linkages to institutions or sectors that can take actions to address the identified social determinants
- **Logical:** in the sense that relationships between and among social determinants and health are evident and reasonable.
- **Linkable to institutional goals and operations:** in the sense of providing a tool for analyzing SDH and incorporating them in institutional strategies, sectoral frameworks, programs, and research agendas.

We reviewed a number of widely used SDH frameworks³ against these criteria. While all the frameworks were comprehensive, many were either highly detailed or overly broad. Those that satisfied criteria for comprehensiveness and logic were often overly complex. The emphasis also shifted between those oriented toward supporting research and those aimed at identifying policy actions, with relatively few addressing both.

³We identified four well known SDH Frameworks and a systematic framework review which gave us information on another 34 SDH Frameworks (Brunner & Marmot, 2006; CCSDH, 2015; Eslava-Schmalbach et al., 2019; Lund et al., 2018; Marmot, 2005; Patel et al., 2018; Solar & Irwin, 2010).

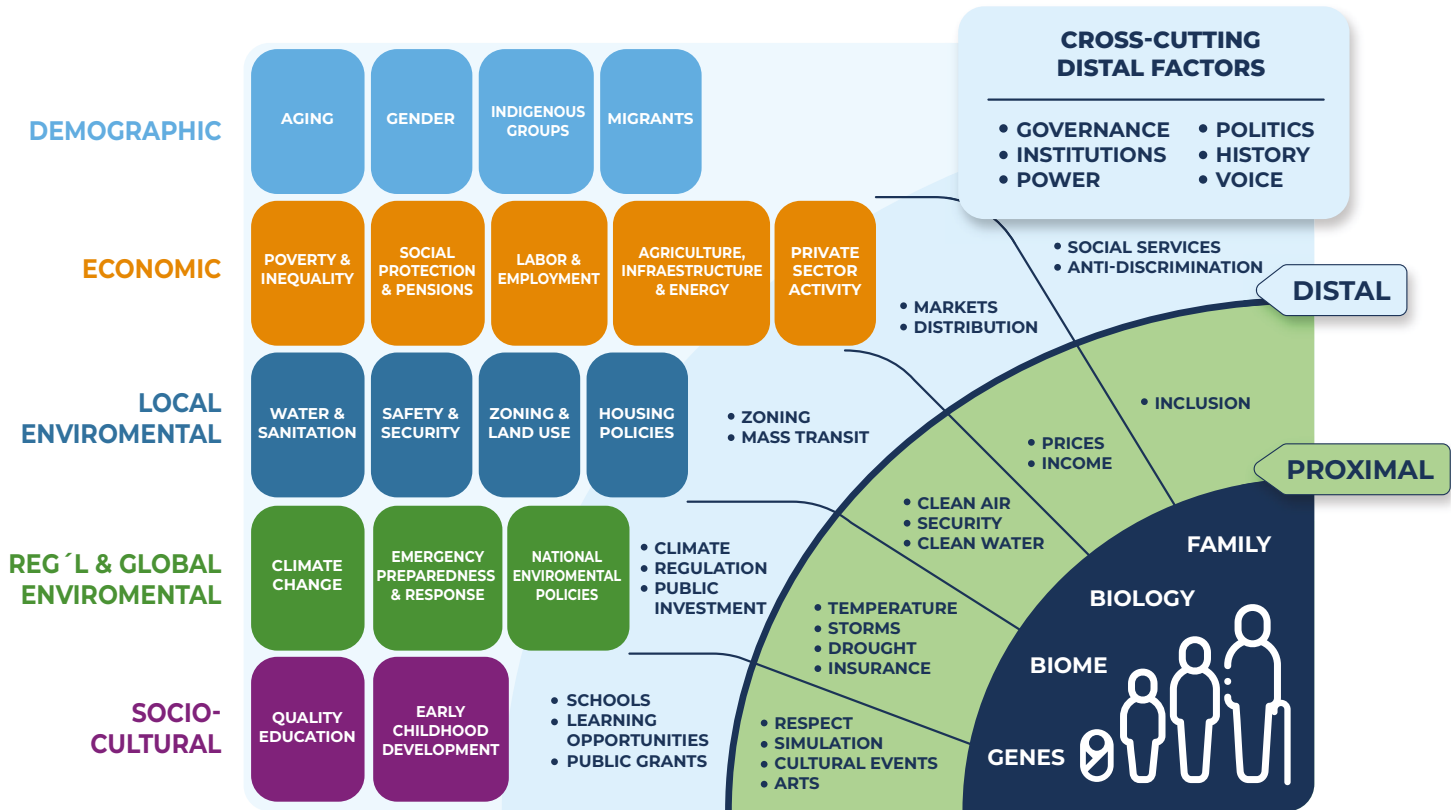
Of the frameworks reviewed, the one presented in (Lund et al., 2018) and used in the Lancet Commission on Global Mental Health and Sustainable Development (Patel et al., 2018) best satisfied our criteria. This framework has a simple, easily understood logic that is also parsimonious while being comprehensive and consistent. It has five categories for social determinants, and it includes a second dimension to explicitly distinguish between distal and proximal causes. This combination makes it possible to link the categories with the SDGs. Finally, it provides a practical tool – a matrix – for summarizing and elaborating upon the visual framework. This tool makes it possible to provide more detailed listings of SDH factors, their impacts on health, and potential interventions for addressing both proximal and factors while remaining linked to the overall visual aid.

For this paper, we generalized this framework beyond the mental health field and linked it not only to SDGs, but also to the operational areas commonly found in development banks and bilateral agencies (see Figure 3). In this modification of the framework, we propose thinking of the five categories as spheres of human life within which public policies can be designed to reduce health disparities attributable to social and environmental factors. The resulting framework shows the wide range of factors that affect health and health equity and links them to a range of potential interventions.

In our modification, we retained the demographic, economic, and socio-cultural groupings from the Lund et al. framework. However, we modified two categories (“environmental events” and “neighborhood”) to distinguish “local environmental factors” from “regional and global environmental factors.” While there is some overlap between the two categories, local environmental factors are more likely to be addressed by local governments, and especially cities, while addressing regional and global environmental determinants of health tends to require regional, national, or global institutions. As a result, the five categories with their range of public policies are as follows.

First, **demography** affects health through many channels. Distal factors such as politics, power, power and voice affect the design of social services and anti-discrimination laws. These, in turn affect proximal factors, in particular the degree to which diverse groups are included, respected, and treated as agents in their lives. Among the many public policy areas within this category are **promoting healthy aging**, confronting gender discrimination, undermining the stigmatization of marginalized groups, and assuring inclusiveness for migrants.

FIGURE 3
Social Determinants of Health Framework



Source: Authors adaptation of (Lund et al., 2018; Patel et al., 2018).

Economic factors have a wide impact on health through distal factors like macroeconomic conditions, unemployment rates, and changing job skill requirements which in turn affect proximal factors like household access to wealth, opportunities to save and manage financial risk, and food security (including sufficient and nutritious foods). Some programs that address economic determinants of health include anti-poverty programs, **cash transfers**, pensions, regulation and enforcement of safe working conditions, reducing occupational risks specific to rural workers, and **health taxes**. Government economic policies affect health through their impact on employment growth and price inflation, but also through public infrastructure investments, which generate employment and indirectly influence settlement patterns and access to services like energy and transportation.

Local environmental factors that affect population health relate to distal factors such as the distribution of power and governance which, in turn, affect zoning laws, availability of mass transit, and local public service investments. These distal factors affect

proximal factors like safety, security, housing quality and crowding, access to recreation, and clean air and water. Public programs that address some of these factors include water and sanitation investments, regulations to improve air quality, green and recreational spaces, zoning, and investments to improve housing conditions, all of which are addressed within modern **urban planning initiatives to improve the built environment**.

Regional and global environmental factors that affect health include many distal factors related to overall governance and even international agreements to deal with pollution. These distal factors mitigate or mediate the impact of major events and broad-based habitat changes due to natural disasters, wars and conflict, and climate change. These can affect health through proximal factors like drought or flooding, but also generate social dislocation and forced migrations which health. Policies and programs that address these factors include mitigation and adaptation to climate change, pandemic preparedness for emergency response, regulation of air pollution, and protection of forests.

Finally, **socio-cultural determinants** of health include the many ways in which people pass on knowledge, share life, and fill creative impulses. Distal factors for this social determinant of health include a full range of political and cultural factors whose impact is transmitted through formal channels like schooling and informal channels such as entertainment media, social events, and public gatherings. These in turn influence the health impact of proximal factors related to respect for diverse forms of cultural expression and intellectual stimulation. Public policies linked to this category include good quality education, opportunities for adult education, **early childhood development (ECD)**, trust in public institutions and healthcare systems, historical preservation, and promotion of the arts.

Along with the visual framework relating these five dimensions to distal and proximal factors, the Lund et al. paper included a matrix which structures an organized process of thinking about how social determinants have an impact on specific health outcomes. With some minor modifications, the matrix can be reconfigured to serve as a tool for programming dialogues or project preparation. For example, a project whose goal is to reduce respiratory illness could begin by listing the social determinants and associated pathways that lead to higher risk of respiratory disease, such as indoor air pollution or particulate matter from industry (See Table 2). Further analysis could identify the distal and proximal factors which channel or exacerbate these pathways. Then, based on the preceding columns, a series of potential interventions could be

TABLE 2
Interrelationships between SDH

**Social determinants & possible interventions for respiratory illness
(including asthma, infections, and cancers)**

	Hypothesized pathways (risks and protective factors)	Distal factors	Proximal factors	Potential interventions
Demographic domain	Women more likely to be exposed to indoor air pollution and molds; cooking; children more likely.	Social norms regarding sexual division of labor.	Roles and expectations based on gender and sex, age, ethnicity.	Household equity in which men share home tasks equally with women.
Economic domain	Poor households have fewer resources for clean cooking fuels; fewer options for buying homes in areas with clean air.	Factors driving up housing prices, distribution of economic activity and jobs, public support for efficient mass transit.	Quality and amounts of housing, employment, income, security, debt, assets.	Improved cookstoves at affordable cost. Cheaper non-fossil fuel alternatives for indoor cooking & lighting. Housing quality improvements (ventilation, dryness, adequate space).
Local environment	Particulate matter from industry, heating, and home cooking increase risk of respiratory illness. Exposure to molds also increase risk of respiratory illness.	Local political struggles over zoning, road construction, public transit.	Built environment, green space, density, housing, ventilation, industrial pollution, traffic pollution.	More opportunities for children to play in open space with clean air. Zoning and air pollution regulations to improve local air quality. Disease vector controls.
Regional & global environment	Global warming.	Reliance on fossil fuels, weak industrial pollution regulations, weak building standards.	Temperature, weather patterns, humidity, disease vectors, fuel use.	Unleaded fuel mandates, transition away from fossil fuels, industrial pollution regulations.
Socio-cultural domain	Education, folk wisdom, peer effects.	Financing for education, cross-cultural communication, social trust.	Knowledge of health protective measures, hygienic behaviors, clean fuels, styles of cooking.	Social media campaigns, education for community leaders & outreach volunteers, curricular.

listed. Finally, the completed matrix can be used to design a project by reviewing the interventions, their costs, their cost-effectiveness, and their feasibility – among other characteristics – and including higher priority activities and investments.

3

Improving health and health equity through policies that address SDH: selected cases

This section presents five examples of policies to address SDH in early childhood development, the built environment, poverty and inequality, harmful consumption, and social determinants specific to ageing. Each case includes a description of the social or environmental determinant, an explanation of how it affects health and demand for healthcare services, a list of some prominent policy interventions from the literature and information regarding financial costs and cost-effectiveness when it is available.



Early Childhood Development⁴

Early Childhood Development, a result of social settings and a determinant of future health

The first five years of life are considered the most important and critical period of a person's lifespan (Likhar 2022; IDB 2024a). Throughout early childhood, and even before birth, the development of the brain's cognitive and socioemotional skills, which are the foundations for future learning, depends not only on adequate nutrition and health, but also on the “nurturant” qualities of the experiences available in the environments where children grow up, live, and learn (Black 2021; Black 2017). Thus, poor development of social skills and emotional regulation skills may lead to higher risk of mental health issues in adulthood. Early cognitive deficits can lead to lower educational attainment, which is a determinant of health behaviors, access to health care, and health literacy. And deficiencies in early development can impair executive functions such as decision-making, problem-solving, and self-control, affecting health behaviors and risk management in adulthood.

It is in this early stage of life, therefore, that many social determinants of health have their most fundamental and lasting impact on a person's course through life (IDB 2024a). Children in households which lack adequate economic resources are likely to have inadequate nutrition, affecting their cognitive development and engagement (Hillman 2008). Socioeconomic status also influences the family's capacity to provide supportive environments and linguistic stimulation, affecting a child's readiness to learn and therefore contributing to educational disparities later in life. Additionally, community and neighborhood settings play vital roles in promoting ECD, yet low-income areas often lack environments conducive to play and physical activity, hindering motor skill development and overall growth (Leventhal and Dupéré, 2019; Institute

⁴ This section draws heavily on Early Childhood Development Sector Framework Development, IDB 2024a, where the main points and more details on the information provided here can be found.

of Medicine and National Research Council, 2000). Furthermore, children in poverty face multiple forms of adversity, including family stress, exposure to violence, and food insecurity, further impeding their development.

Socioeconomic disparities in ECD outcomes have been widely documented in LAC in terms of social determinants of health related to maternal education, household income, ethnicity, and location (e.g., rural compared to urban areas) (IDB 2024a). By age five, lacking a variety of supportive social determinants, children from vulnerable backgrounds may experience delays in language development, setting them at a disadvantage even before formal schooling begins, thus potentially perpetuating inequalities throughout their lives. Even policies aimed at providing disadvantaged children with better developmental opportunities, such as healthcare centers, may end up reinforcing inequitable social patterns if supply is limited and poorer households face obstacles in obtaining openings for their children.

An important consequence of these patterns is that children growing up in poor households without the supportive social factors that lead to healthy development are likely to have lower socioeconomic status in adulthood. This perpetuates a cycle of poverty by successively recreating limitations in access to resources, healthcare, and healthy living conditions. In this way, early childhood development is a lens through which to view a variety of critical social determinants of health which, if present, promote a person's health and, if lacking, can result in serious harm.

ECD policy interventions

ECD interventions focus on play and promoting quality caregiver-child interactions, which are the basis for healthy cognitive, language and socioemotional development. In practice public programs which aim to improve ECD for disadvantaged children combine a number of interventions – nutritional, educational, behavioral, etc. – in packages of services which are then delivered as family support programs, in childcare centers, or in pre-school settings.

Family support programs

Family support programs (FSP) typically involve outreach workers who make individual home visits, lead group sessions or a combination of both. These programs seek to improve childrearing and caregiving practices by influencing the behaviors of parents and other primary caregivers in the home. They are most commonly used to serve dispersed, rural areas where establishing childcare centers would be quite inefficient.

Meta-analysis of parenting interventions for children below age five in low- and middle-income countries including LAC have demonstrated positive, small-to-medium, short-term effects of such parenting interventions on childhood developmental outcomes, including cognitive, language, and motor skills (Zhang 2021, Prado 2019, Jeong 2021).

Nevertheless, very few studies examine the extent to which the impact of FSP is sustained later in life. The most comprehensive data available on the adult benefits of early psychosocial stimulation or disadvantaged children from a developing country come from the well-known, small scale Jamaica Early Childhood Stimulation RCT conducted between 1987 and 1989. Follow up evaluations have shown long-term benefits for program participants in terms of educational, social-emotional, and economic outcomes. For example, participants surveyed at age 17 had higher educational attainment, less serious violent behavior and fewer symptoms of depression and social inhibition (Walker 2022); at age 31 the treatment group had 43% higher wages and 37% higher earnings than the control group. Moreover, the treatment effect is larger for females than males (Gertler 2014).

In LAC, FSPs at scale are only present in a few countries. One recent study evaluated scaling up an existing government program with a high-quality early stimulation curriculum and a combination of enhanced nutritional supplement for beneficiary children and nutrition education. The intervention improved children's development and nutritional status in a short period of time. However, a key question remained over the likelihood these short-term impacts would be sustained (Attanasio 2022).

Childcare centers

Childcare centers offer care, nutrition, opportunities to learn through play, and, sometimes, healthcare services outside the home. They serve children from birth through age three with the aim of facilitating parents' employment while strengthening ECD. In high-income countries (HICs), high-quality childcare programs consistently show positive impacts on a child's developmental outcomes, especially among vulnerable populations. In these settings, small-scale programs have shown enduring benefits into adulthood, including in terms of health and health behaviors. Large-scale interventions present mixed results, with positive outcomes primarily observed among disadvantaged children. Conversely, negative effects are more prevalent in affluent populations or when home care quality exceeds program quality (IDB 2024a).

In LAC large-scale childcare programs generally yield positive ECD outcomes, though outcomes vary across settings. A review of child development outcomes from cen-

ter-based childcare interventions identified 71 studies in 33 countries (21 from LAC). It found that interventions at current levels of childcare quality benefit children, especially girls (Evans 2024). The highest proportion of positive results are on socio-emotional development (86 percent of results), followed by cognitive outcomes (83 percent). To the extent that these childcare programs have provided the social factors that promoted the socioemotional growth of these children, they have not only improved early cognitive development but have also reduced risks of substance abuse and use of medication for emotional and behavioral issues later in life, especially in adverse contexts (Becker 2002).

Long-term health effects of center-based programs were documented in a follow up evaluation of the Carolina Abecedarian Project (ABC), a randomized control trial of a full-time, high-quality educational intervention in a childcare setting from infancy through age 5 in the United States (Campbell et al 2014). Using biomedical data, researchers found disadvantaged children randomly assigned to treatment had significantly lower prevalence of risk factors for cardiovascular and metabolic diseases in their mid-30s. The evidence was especially strong for males. The mean systolic blood pressure among the control males was 143 millimeters of mercury (mm Hg), whereas it was only 126 mm Hg among the treated. One in four males in the control group was affected by metabolic syndrome, whereas none in the treatment group were affected.

Preschool programs

Preschool programs which offer early education, care, and often nutrition to children from age three to the start of primary school have consistently shown positive impacts in child development indicators both in the short and long term, globally and in LAC. Evaluations from the US demonstrate high returns in the short run, along with long term benefits from numerous factors associated with better health such as academic progress, achievement, employment, and income in the long term. (Heckman et al. 2010; Bailey, Sun, and Timpe 2021; De Haan and Leuven 2020; Bai et al. 2020; Bastos, Cristia, and Kim 2016; García et al. 2020, as cited in IDB 2024a).

In LAC, preschool access has shown positive impacts, benefiting cognition, primary school performance, academic progress, and educational attainment in various countries (Cueto et al. 2016; Berlinski, Galiani, and Gertler 2009; Bastos, Bottan, and Cristia 2017; Cortázar 2015; Berlinski, Galiani, and Manacorda 2008 as cited in IDB 2024a). Benefits of pre-school programs accrue to the most disadvantaged children, including indigenous populations and Afro-descendants. (Drange and Havnes 2019; Akee and Clark 2023; Friedman-Krauss and Barnett 2020; Deming 2009 as cited in IDB

2024a). Long term reported outcomes include increases in life expectancy, participation in civic duties, reduced demand for public assistance, fewer school disciplinary problems, and lower crime rates, and also positive spill-over effects to siblings, with children of preschool participants showing improved education, employment, and reduced crime rates (Rossin-Slater and Wüst 2020; Garces, Thomas, and Currie 2002; Schweinhart et al. 2005; García, Heckman, and Ronda 2022; Barr and Gibbs 2022; Heckman and Karapakula 2021 as cited in IDB 2024a).

Costs and return on investment of ECD programs

It is rare to find information about the cost of programs investing in social determinants of health, but a study that analyzed a pilot program in Colombia, “Familia Mujer e Infancia” (Family, Mother, and Infants known by its Spanish acronym FAMI) reported costs and compared them with alternatives (Attanasio 2022). It calculated that:

- The pedagogical component of the intervention cost US\$115 per child per year. This comprised US\$27 for pedagogical materials and US\$ 88 for coaching. There was also a one-off cost per child for FAMI Pre-service training of US\$11 per child.
- The additional nutritional supplements cost US\$209 child per year.

The study compared these costs to center-based childcare services which cost US\$1,100 per child per year. Another option involved a transition to large childcare centers, a center piece of recent government policies, which costs US\$780 per child per year. In comparison with these alternatives, FAMI was quite inexpensive. The Colombian government subsequently scaled up the nutritional supplementation nationwide, with an investment of US\$10 million.

Investing in the social determinants that promote healthy development for disadvantaged children has shown high returns to the individuals themselves and to society through increased personal achievement and greater social productivity (García, Heckman, et al 2019). The short-term costs are more than offset by immediate and long-term benefits by reducing the need for special education and remediation, improving health outcomes, reducing the need for social services, lowering criminal justice costs and increasing self-sufficiency and productivity. Through these channels, high-quality birth-to-five programs for disadvantaged children can deliver an estimated 13.7% per year return on investment (García et al. 2020), which is among the highest rates for programs investing in social well-being.

Calculations for home visits at scale have shown cost-benefit ratios (as cited in IDB 2024a) ranging from 5.4 in Peru (Araujo, Rubio-Codina, and Schady 2021) to 11.7 in Nicaragua (Lopez Boo, Leer, and Akito 2023). In addition, at-scale childcare yielded a benefit-cost ratio of 6.2 in Nicaragua (Hojman and Lopez Boo 2022). Both FSP and childcare show benefit-cost ratios that are up to four times larger than those of pre-school programs (Lopez Boo, Leer, and Akito 2023; Hojman and Lopez Boo 2022; Araujo, Rubio-Codina, and Schady 2021; Berlinski and Schady 2015).



The built environment and urban planning

The built environment context in LAC

The built environment (BE) is defined as physical surroundings created and shaped by people. These include roads, neighborhoods, recreational facilities (such as parks and playgrounds), and food sources such as farmland and markets. It also includes buildings and houses in which people live and perform activities related to eating, playing, educating, and working. The perception of these surroundings by those living in them, including cleanliness and aesthetics is an important part of the built environment (Nordbo 2020, Renalds 2010).

LAC countries have urbanized rapidly. Between 1950 and 2015, the urban population rose from 41% to 80% of the total population, and it is expected to reach 90% by 2050 (IDB, 2020a). This makes LAC countries among the most urbanized in the world. Therefore, the choices made regarding how cities develop and grow, how they organize transportation and land use, how they manage access to quality housing and other resources, and the social and economic policies they prioritize and implement has profound consequences for the health of more than 520 million city residents in LAC today (Diez-Roux et al., 2018).

Relationship between the built environment and health

BE characteristics may affect health through a multiplicity of mechanisms. Below is a selection of key aspects of the BE and how they influence major causes of burden of disease in LAC.

Urban design and risk factors for NCDs

Many preventable non-communicable diseases (NCDs) are influenced by everyday living conditions that limit healthy lifestyle choices (Grant et al., 2017). Factors like limited

access to quality public spaces and a lack of sidewalks and street safety discourage physical activities such as walking, which can contribute to obesity, diabetes, and poor mental and cardiovascular health. Other environmental risks for NCDs in urban settings include second-hand smoke, chemical exposure, and radiation. These risks disproportionately affect women, children, and marginalized populations (Valson, 2018).

Housing quality

Housing characteristics significantly influence diverse health outcomes (IDB 2022a). Structurally deficient homes increase the risk of slips and fall. Indoor air pollution from wood or coal stoves harms respiratory health. Crowded housing raises the risk of infectious diseases and stress. Inadequate water and sanitation facilities negatively impact food safety and personal hygiene. Unsafe building materials or hazardous locations can lead to injuries from building collapses. All these risks are heightened in slums and informal housing due to lack of access to basic services. These settlements are often in hazard-prone areas like landslides, floods, and industrial pollution zones. Additionally, the lack of legal title to homes adds stress and the threat of forced eviction.

Water and sanitation

Inadequate infrastructure for water and sanitation services (WASH) is associated with significant health disparities and the spread of infectious diseases both in rural and urban areas. In LAC, only 75% of the population has access to safely managed water services (meaning that more than 160 million people still lack them), and 49% have access to safely managed sanitation services. (IDB 2020). Residents in impoverished neighborhoods bear the brunt of irregular or low-quality urban services, with about 25% of urban LAC residents living in informal settlements lacking access to WASH. A high burden of infectious disease is associated with lack of access to WASH diseases (Prüss-Ustün, 2019), in particular diarrheal and respiratory diseases. Unsafe water storage practices in the home and open-air or stagnant wastewater in settlements can leave populations without adequate without water and sanitation, fostering the spread of mosquito-borne diseases such as malaria and dengue., especially in warmer climates. The impacts of access to water and sanitation on health also have long-term effects, impacting height, body weight, years of school, future earnings, and wealth accumulation.

Environment

Many LAC cities experience extreme weather and environmental pollution, exposing residents to heat waves, droughts, floods, landslides, and ground pollution. Pollution, both in air and water, contributes to avoidable mortality and morbidity, with indoor

and outdoor air pollution alone accounting for 5% of avoidable health issues in the region (Campbell-Lendrum & Prüss-Ustün, 2019). Informal urban settlements face multiple environmental health risks, leading to higher disease burdens (Corburn & Sverdlik, 2019).

Transportation: Congestion, pollution and road safety.

Alongside urbanization, LAC has experienced rapid growth in the use of private vehicles, including cars and motorcycles. (IDB 2020). For example, the motorcycle fleet grew 153% in the region's 29 main cities between 2007 and 2014. The stock of **road infrastructure** in the region's cities has been allocated to individual transportation over public and active transportation. Less than 1% of the road network is dedicated exclusively to public transportation and 1.2% to cycling paths. The increase in private mobility, combined with lack of effective standards for fuel efficiency and vehicle emissions has generated congestion, pollution, and road accidents (with repercussions for climate change) (IADB, 2020).

According to INRIX's 2019 Global Traffic Scorecard, four of the ten most congested cities globally are in Latin America and the Caribbean. Urban congestion negatively impacts mental health, causing high levels of fatigue, increased aggressiveness, communication difficulties, and sleep disruption (Conceição 2023). A survey in 11 Latin American cities found a link between traffic congestion and a higher likelihood of depression (Wang 2019). Additionally, congestion is associated with higher accident rates on congested highways and increases pollution levels due to higher fossil fuel consumption.

Urban transportation in LAC contributes 8.6% of total urban emissions worldwide, making air pollution a significant environmental issue for the region (International Transport Forum, 2019). The World Health Organization (WHO) estimates that around 100 million people in LAC are exposed to air pollution levels exceeding recommended limits. A study of 337 cities in nine Latin American countries found that fine particulate matter air pollution is linked to increased cardiovascular and respiratory mortality among adults (Gouveia 2024). The welfare losses from premature deaths due to air pollution in LAC could amount to around 2.4% of regional GDP (World Bank 2020).

Lastly, approximately 150,000 people die in Latin America and the Caribbean each year as a consequence of road accidents, with estimated costs of up to 3% of regional GDP (Martínez, 2019). Fatality rates in road accidents involving motorcycles are particularly high, accounting for 23% of total deaths (PAHO, 2019).

Urban planning policies to improve health

General principles

Enhancing health and wellbeing through urban design requires an integrated, multisectoral approach guided by policies that link human and environmental health. Urban design and transport interventions can deliver substantial, immediate, and long-lasting health benefits, making them crucial for creating healthy and sustainable urban environments. These efforts are most equitable when they address the higher exposure to environmental threats and infrastructure deficits faced by poorer and marginalized groups (Lancet 2022).

There are three domains where urban planning can most effectively focus support for health and well-being (Kent 2014). These address the principal risk factors for contemporary chronic disease—physical inactivity, obesity, and social isolation. UN-Habitat and WHO (2020) emphasize the general principles effective urban planning policies for health, well-being and equity should follow are:

1. **Promote Compactness and Connectivity:** Develop economically and socially viable communities with accessible local amenities, encouraging everyday physical activity and mobility for all.
2. **Enhance Social Inclusivity:** Engage residents in creating spaces that meet diverse needs throughout their lives, encouraging informal social interactions in public open spaces.
3. **Design less demanding and resilient settlements:** Use nature-based solutions, innovative technologies, and sustainable practices to promote health, protect the environment, and improve resilience to climate change and natural disasters.

Trends in urban policies for health

Urban models for more sustainable, livable and healthier cities.

Several new urban concepts, such as superblocks, low traffic neighborhoods, 15-minute cities, and car-free cities, aim to reduce private car use and enhance public and active transportation (walking and cycling). These models focus on decreasing air pollution, noise, and heat island effects while promoting physical activity through more accessible mobility options. For example, compact cities, characterized by higher density, shorter travel distances, and greater diversity, may offer additional health benefits compared to low-density sprawling cities. A modeling study suggests that

increasing city compactness by 30% could avoid around 400-800 disability-adjusted life years (DALYs) per 100,000 people annually from diabetes, cardiovascular disease, and respiratory illnesses, depending on the city type (Stevenson et al., 2016).

Promoting physical activity (PA)

The Latin American (LATAM) region has among the highest levels of sedentarism in the world, which have been rising steadily in the last decades (Melo et al 2023). Among adolescents in Latin America, only 15% do daily at least 60 min of moderate or vigorous physical activity. Women are less physically active than men, while higher socioeconomic status and higher maternal education positively affect physical activity levels among boys and adolescents.

Walking, one of the simplest forms of physical activity, provides significant health benefits, such as reducing premature mortality, lowering the risk of cardiovascular disease, and enhancing mental health (Kelly et al., 2014; Kelly et al., 2018; Oja et al., 2018; cited by Nieuwenhuijsen 2021). Important features of the built environment that promote walking include walkability, residential density, street connectivity, access to destinations and services, infrastructure, streetscape, and safety (Barnett et al., 2017; Gascon et al., 2019; Nieuwenhuijsen, 2018; cited by Nieuwenhuijsen 2021). Urban development that incorporates mixed-use residential and commercial areas with sidewalks, paths, and car-free zones encourages people to engage in walking for exercise (Mackett & Thoreau, 2015). Box 2 depicts the situation of the built environment for physical activity in eight Latin American countries.

The development of cycling infrastructure has become a strategy to promote physical activity in LAC cities (Sarmiento 2017), with a substantial increase in bike path construction. Additionally, Ciclovía programs, which temporarily close streets to motorized traffic for recreational activities and exercise, have become popular. An analysis of the cost-benefit ratios (savings on direct medical costs for every dollar invested in the Ciclovía program) of five programs in Latin America and the USA supports the implementation of this type of program to promote physical activity in urban settings (Montes 2012). The annual cost per capita of the programs was: US\$6.0 for Bogotá, US\$23.40 for Medellín, and US\$6.50 for Guadalajara. The cost-benefit ratio for health benefits from physical activity was between 3.23 and 4.26 in Bogotá, 1.83 in Medellín, between 1.02 and 1.23 for Guadalajara.

BOX 2

The need for a built environment to promote physical activity

For many urban residents of Latin America engaging in a simple physical activity such as walking is still challenging for a variety of reasons. One study that explored the reasons for limited physical activity examined the association between characteristics of the built environment (accessibility, microinfrastructure and security) and the level of physical activity in male and female urban populations between 15 and 65 years living in urban areas of eight Latin American countries (Barreno et al 2021). Findings show that individuals located within 20 min of walking from sport facilities and children's playground are more likely to perform moderate/high physical activity. However, most of the population studied considered the infrastructure areas to be poorly accessible and unsafe for such activities. Only 14.5% of the population from the region considered that their neighborhood had an adequate design for walking or cycling. Likewise, only four in ten adults living in these countries perceived their neighborhood as safe. The findings provide the rationale to push forward national policies, which will help to achieve a safe, healthy and friendly built environment for physical activity in the region.

To enhance the impact of active mobility options like walking and cycling, changes in the built environment should be accompanied by regulations to encourage physical activity while promoting safe and accessible spaces for these modalities (e.g., secure bicycle parking options near public transport and places of work, incentives for private investment in walkways that link green areas).

More green space

Green spaces can improve health by providing opportunities for physical exercise, improving access to nature and mental wellbeing, reducing air and noise pollution, and lowering urban heat.

Modern urban planning frequently prioritizes expanding access to green spaces due to their extensive health benefits, such as longer life expectancy, reduced mental health issues, enhanced cognitive abilities, improved mood, and healthier births (Nieuwenhuijsen et al., 2017a; Nieuwenhuijsen et al., 2017b; Gascon et al., 2015; Kondo et al., 2020; cited by Nieuwenhuijsen 2021). Schools with greater green space exposure show a notable improvement in children's cognitive development (Dadvand et al., 2015; cited by Nieuwenhuijsen 2021). Early interaction with green environments is linked to fewer mental health challenges in later life (Preuß et al., 2019; cited by Nieuwenhuijsen 2021). Additionally, green spaces contribute to lower rates of premature mortality; research suggests that increasing the urban tree canopy from 20% to 30% could save over 400 lives annually in cities like Philadelphia, accounting for about 2% of all deaths (Kondo et al., 2020; cited by Nieuwenhuijsen 2021). These positive impacts are larger in underprivileged neighborhoods.

Urban foresters suggest the 3-30-300 rule – a guideline to increase green spaces in cities – proposes every resident should be able to see at least three large trees from their home, neighborhoods should have 30% tree canopy coverage, and everyone should live within 300 meters of a park or green area (IUCN, 2020; cited by Nieuwenhuijsen 2021). Evidence supports the benefits of the 30% tree canopy target, although research on the impact of tree visibility and proximity is less conclusive (Labib et al., 2020; Astell-Burt et al., 2021; Astell-Burt and Feng, 2020; Astell-Burt et al., 2020; cited by Nieuwenhuijsen 2021). Some studies highlight that actively spending time in nature, rather than just having it nearby, contributes to better health and well-being, suggesting at least two hours per week in natural environments (White et al., 2019; Kruize et al., 2020; cited by Nieuwenhuijsen 2021). Research in over 200 Latin American cities has shown that greater exposure to green areas is associated with lower BMI levels and reduced odds of obesity and type 2 diabetes (Anza-Ramirez et al., 2022).

Reducing emissions

Complementary policies aimed at enhancing the environmental sustainability of the transportation sector emphasize the promotion of active transportation (such as cycling and walking) and public transportation, aiming to alleviate congestion and reduce pollution. International research indicates that the implementation of bicycle-sharing systems increases the frequency of individual or shared bicycle usage (Ricci, 2015). Moreover, studies demonstrate that such systems facilitate modal shifts, leading to decreased car usage that is likely substituted by increased use of bicycles and therefore physical activity. For instance, bicycle-sharing systems have contributed to reducing car travel by approximately 90,000 kilometers per year in cities like Melbourne and Minneapolis/St. Paul, and by 243,291 kilometers in Washington, D.C. (Fishman et al., 2014).

Improving road safety

In 2016, the UN General Assembly endorsed a resolution on “Enhancing Global Road Safety” that urges member states to implement road safety initiatives. This includes a call to enact comprehensive legislation addressing risk factors like speeding and driving under the influence, as well as the use of motorcycle helmets, seatbelts, and child restraints. It also urges efforts to enhance vehicle and road safety standards and bolstering emergency trauma care for individuals involved in traffic accidents (WHO 2015).

There is limited causal evidence on the effectiveness of road safety interventions in LAC except for two studies that show achievements through road safety programs that included legislative change (Martinez 2019). One of these, in Chile, evaluated the

enactment of a law in 2012 to reduce blood alcohol limits from 0.5 to 0.3 and found significant reductions in alcohol-related road accidents from 18% to 25% (Otero and Rau, 2017). Blanco et al. 2017 studied a natural experiment in Uruguay, where a motorcycle helmet law was enforced in one municipality but not in another. Within just one month of implementing the law, helmet usage rose from 10% to over 90%. There was an 8.7 percentage point reduction in the likelihood of serious injuries or fatalities, marking a 57% decrease relative to the control group.

There is still much room for improvement in LAC regarding adoption of the above road safety interventions of proven effectiveness. For example, wearing a seatbelt reduces the risk of fatality among drivers and front-seat occupants by 45–50% and the risk of minor and serious injuries by 20 and 45%, respectively (Elvik et al. 2009). However, there is high variability in the use of seatbelts in LAC, from 39% in the Andean South, to 85% of passengers in the Latin Caribbean. Data from Thailand indicates that following legislation and enforcement for motorcycle helmet use, head injuries decreased by 41% and deaths by 21% (Ichikawa 2003). Despite all LAC countries having national legislation requiring the use of helmets on motorcycles and/or mopeds there is variation in their requirements (i.e., standards for helmets, helmet fastening).

Increased access to WASH. Impact, costs and returns

WASH interventions have been widely evaluated. Improved access to drinking water within the home reduces diarrhea episodes by 75%, while sanitation interventions covering more than 75% of the community decrease the risk of diarrhea by 45% (Wolf et al., 2018). Investments in potable water and sewerage systems, network-based solutions, tend to have a more significant impact than investments in household-level solutions, reducing the risk of diarrhea by 40% compared to 16%. These positive health impacts can be further enhanced through hygiene practices and health education initiatives addressing handwashing, menstrual hygiene, personal hygiene, and food hygiene.

Including impacts on improving the population's quality of life, health, social and gender inclusion, productivity, environmental sustainability, and economic growth, the socioeconomic returns of each dollar invested in water in LAC are US\$3 in urban areas and US\$8.2 in rural areas (Agênor, 2013). For investments in sanitation, the returns are US\$3.3 for urban areas and US\$8.1 for rural ones (Hutton and Whittington, 2015). Estimates of the annual capital costs of meeting SDG targets 6.1 and 6.2 (universal access to potable water and adequate sanitation) in LAC by 2030 are \$14.0 billion per year. The regional costs of basic and safely managed water and sanitation services as

a proportion of the gross product are calculated to be 0.05 to 0.23 of Gross Regional Product. (Hutton and Varughese 2016).

Box 3 provides an example of the benefits of improving access to WASH in Bolivia.

BOX 3

Improving access to Water and Sanitation in Small Localities and Rural Communities in Bolivia

Small localities and rural communities in Bolivia tend to have lower coverage of high-quality water and sanitation, compared to urban areas. According to the Instituto Nacional de Estadística in 2007, the coverage of drinking water services in Bolivia was 87% in urban areas and 50% in rural areas, and of sanitation services was of 54% and 37% respectively. Between 2011 and 2018 the IDB's Water and Sanitation Division implemented a project to increase the access to sustainable water and sanitation services in remote rural communities of up to 10,000 inhabitants. The project supported the construction and/or improvement of water systems; community development together with institutional strengthening for entities providing water and sanitation services and of municipal governments, as well as training of water and sanitation service providers. Active participation of women in the activities of the program was promoted in a transversal manner.

The program successfully expanded access to clean water and sanitation in rural and small communities; 198 and 203 small communities had benefited from drinking water and sanitation interventions, respectively, and 5,604 households in larger communities gained access to drinking water, with daily consumption rising from 40 to 104 liters per person. Additionally, 8,458 households were newly connected to sanitation systems.

An experimental impact evaluation found that the project had an impact on reducing the prevalence of diarrhea by 11.6 and 6.8 percentage points for children aged 7 to 16 years and adult males aged 17 to 49 years, respectively. Impacts on children under five, on changes in hygiene practices and on more time dedicated to productive activities were limited. This suggests a need for further motivating behavioral changes related to hygiene practices and gender equity that allow improvements in access to services to be translated into improvements in the health status and living conditions of the communities.

Upgrading housing

Several robust empirical studies provide compelling evidence of health benefits of establishing minimum living standards in LAC (Mc Tharbaghan 2016):

- Delivery of materials and technical assistance for concrete floors- Mexico's Programa Piso Firme achieved reduced rates of enteric diseases in children, improvements in mothers' mental health (Gertler et al. 2012)
- Formalization of land titles in Buenos Aires improved weight-for-height among children and decreased teen pregnancy rates (Galiani and Schargrodsky 2004)
- Prefabricated housing solutions in Mexico, El Salvador, and Uruguay reduced diar-

rhea incidence in children (Galiani et al. 2014, 2015)

- Discount vouchers to connect to the electricity grid in El Salvador reduced respiratory infections among children due to decreased PM2.5 levels (Barron and Torero 2017).
- Provision of upgraded cooking stoves to replace coal cooking in Guatemala reduced respiratory symptoms in household members (Smith-Sivertsen et al. 2009). See Box 4 for another detailed example.
- A set of physical improvements (the roadway system, public lighting, green areas, sanitation, and housing quality), legalization of land titles and social development interventions of Vila viva program in Belo Horizonte, Brazil achieved decline in mortality rates during the study period compared to a control area and the rest of the city (Friche et al., 2015).

BOX 4

Improving housing quality and health through the efficient use of firewood and alternative fuels in rural and indigenous communities of Guatemala

Guatemala has a high per capita firewood consumption, leading to deforestation, CO₂ emissions and severe health risks due to smoke inhalation. Close to 2 million vulnerable households – mostly in rural areas and in indigenous communities- use firewood for cooking. Worsened by exposure to air pollution from traditional open-fire cooking stoves, 70% of Guatemalan households, mostly children and women, are at high risk of cardiac and respiratory diseases (Mitigation Action Facility, 2024). Since 2021 the IDB's Energy Division has been implementing a project to increase access to efficient cooking technologies, like those used by Improved Cooking Stoves (ICS) (IDB 2024c). ICS reduce carbon emissions and provide sustainable energy solutions, and expected co-benefits are reductions in health risks of indoor air pollution, saving on health and firewood related expenses, aside from the environmental benefits of reduced forest degradation.

The project involves designing culturally appropriate ICS and promoting their use through education and awareness campaigns. It also establishes incentives to facilitate the production and purchase of stoves, including microcredits and subsidies. Guarantees to encourage financial institutions to offer products for the purchase and manufacture of ICS will be provided, contributing to the sustainability of investments and the creation of a market dynamic for these stoves. The project also offers training to inform communities about the benefits and maintenance of ICS, and a monitoring system to track reductions in emissions reductions and improvements in health.

Impact will be evaluated through a field-based kitchen performance test, a qualitative survey on households' health spending and their socio-economic conditions before and after the installation of the ICS, and a quantitative household survey at the end of the 3rd and 5th years of the project to compare firewood consumption, expenditure on fuels for cooking, health expenditure, and visits to healthcare centers between households with and without ICS stoves.

Transportation innovations

In 2004, Medellin, Colombia, introduced a cable car system (Metrocable) connecting an impoverished neighborhood with downtown areas, that reduced commute times for residents. Following implementation, homicide rates and perceived violence decreased citywide and, specifically, neighborhoods served by Metrocable experienced a 66% greater reduction in homicide rates compared to comparable areas elsewhere (Cerdeira et al., 2012).



Poverty and inequality

The relationship between income and health

Income may be linked to health through four main pathways (Benzeval 2014).

- **Material:** Financial resources enable access to essential needs like shelter and food, reducing exposure to harmful factors like pollution. The socioeconomic context, such as welfare systems and quality of education and healthcare, influences how money affects health outcomes. For example, the availability of welfare systems may mitigate the impact of sudden income losses
- **Psychosocial:** Social surroundings impact individuals' emotional status, with poverty-induced stress and lack of support systems leading to health issues. Comparisons with wealthier individuals can cause distress, triggering biochemical changes that harm health over time.
- **Behavioral:** Negative health behaviors, such as poor diet and substance abuse, are more common in disadvantaged groups. These behaviors may stem from the costs of healthy lifestyles, coping mechanisms for stress, and prioritization of immediate gratification. Cultural context also influences the prevalence and acceptability of these behaviors.
- **Reverse Causation:** Poor health can limit work ability and earning potential. Long-term childhood health issues can affect education and future job opportunities. Stigmatization of physical characteristics related to health can also impact employment and income, affecting economic outcomes.

Income support policy interventions and health outcomes

LAC has the world's highest income inequality. In 2022, the percentage of people living in poverty in LAC was 29% of the population (181 million people), while extreme poverty affected 11.2% of the region's population (70 million people (ECLAC 2023). The 10% highest earners make on average 12 times more than the poorest 10%. This compares to a ratio of 4 on average for developed countries in OECD (IDB 2024b).

Income support programs aim at supporting minimum levels of consumption for households experiencing persistent or temporary poverty. These programs provide direct transfers of money to individuals, families, or households and can be done through several modalities. By improving income and the daily living conditions of individuals and families they can improve health outcomes, as shown by the evidence below regarding the most well-known modalities.

Universal Basic Income

Universal Basic Income (UBI) programs disburse regular cash payments to all individuals of a community, without a work requirement or other conditions. Several UBI-inspired pilot programs have been implemented to explore feasibility and impacts, yet none have been implemented at a national level.⁵

Practically all UBI-inspired programs share the core principle of being unconditional and have few eligibility requirements. No UBI program has been funded with government resources. A promising experience is taking place in Kenya (Give Directly 2023). A non-profit organization has raised US\$30 million to finance a UBI of 75 cents per day for about 23,000 Kenyans over 12 years in an area where many people live on a dollar per day or less. When complete, this study will be the largest and longest UBI experiment ever conducted.⁶

UBI programs may have important positive impacts on health by increasing access to services and improving the social determinants of physical and mental health. Having a secure income could free individual time for other activities, such as education,

⁵ The Guaranteed Minimum Income (GMI) is another direct cash transfer program. In this case, funds are disbursed to individuals or households whose incomes are below a given level with the goal of raising their consumption possibilities above that threshold. Unlike UBI, these programs are conditional on some indication of an individual or household's income.

⁶ <https://www.givedirectly.org/2023-ubi-results/>

community work, entrepreneurship. The security of a basic income reduces stress and unhealthy ways of dealing with stress. A generous UBI program could reduce economic insecurity, thereby decreasing stress (Ruckert et al., 2018). Economic insecurity is increasingly cited as one of the key socioeconomic determinants of mental health (Allen et al., 2014; Kopasker et al., 2018; Lund, 2018; cited by The Stanford Basic Income Lab 2024).

A scoping review of “interventions similar to basic income” that is, interventions that meet some of the criteria for full basic income but not all of them, found mixed evidence of its effectiveness on specific health issues (for example, increases in accidental deaths are probably associated with substance abuse), with strong positive effects on mental health (depression, stress) and birth weight (Gibson 2020). Almost all the interventions came from North America. The basic income experiment in Finland (2017–2018), albeit brief, showed signs of stress reduction among participants relative to non-participants: 54.8 percent of participants reported little to no stress relative to 45.6 percent of non-basic income recipients (Kangas et al., 2019).

Cash transfer programs

Launched in the 1990’s, *conditional cash transfer programs (CCTP)* were created in LAC to alleviate current poverty by supporting consumption and incentivizing accumulation of human capital and increasing resources among children and young people through conditionalities. CCTPs targeted poor households, providing them with cash to spend freely, so long as they fulfilled established co-responsibilities. In 2019, CCTPs reached 120 million people in 18 countries, equivalent to 18.5% of the region’s population (IDB 2021). *Unconditional cash transfer programs (UCTPs)* have become more common in LAC after the COVID-19 pandemic in response to the need for broad coverage to protect against systemic shocks (Gentilini et al., 2022; Gentilini, 2022; Stampini et al., 2021). These schemes disburse the same amount of benefit to all recipients and, in contrast to UBI, UCTPs are targeted.

General health outcomes

CCTPs and UCTPs can reduce poverty, improve school attendance, and enhance the use of health services (Bastagli et al., 2018). These programs also contribute to better dietary diversity and anthropometric measures. For women, they can increase decision-making capacities; evidence is mixed regarding the incidence of physical abuse by male partners (Angelucci, 2008; Díaz and Saldarriaga, 2022). In the context of sub-Saharan Africa, cash transfer programs have shown positive impacts on nutrition, child deprivation, sexual risk behaviors, teen pregnancy, healthcare utilization, and mental health (Owusu 2018).

Mortality

Evidence, primarily from sub-Saharan Africa, suggests that CCTPs and UTCs can reduce mortality rates, particularly among young children and women. Higher coverage, larger cash transfers, and lower health expenditure per capita were associated with greater mortality reductions (Richterman et al., 2023).

Mental health

Cash transfers can also improve mental health (reducing sadness, anxiety, and withdrawal) in children and adolescents, with improved internalizing symptoms in boys. However, mental health can worsen in older girls and those with children, possibly due to increased responsibilities from conditional cash transfers (Zaneva 2022). A large systematic review of studies on low- and middle-income countries found that increasing income through cash transfers improved mental health and well-being, with a 0.13 standard deviation improvement in mental health measures and a 0.38 standard deviation improvement in well-being. However, the studies had a high risk of bias (Thomson 2022).

In Colombia, preliminary evaluations of the “Jóvenes en Acción” program, which includes mental health promotion alongside conditional cash transfers for education, showed a positive effect on formal employment, a significant social determinant of health (DPS 2017).

How much can UBI policies cost?

Estimates of the costs of implementing different modalities of income support programs at the national level in LAC show that this policy is quite expensive for most countries using several common poverty level indicators (see IDB 2021a):

- Closing the poverty gap using the international poverty line and targeting the poor with varying transfer amounts, would cost between 3.5% and 5.1% of GDP, in lower-middle and upper-middle income countries respectively (Gentilini et al., 2020).
- Transferring one national poverty line for all adults and children in LAC, would be equivalent to 31% of GDP in 2018 (Ortiz et al., 2018).

Before dismissing UBI as an approach, however, countries need to consider their goals and the full range of potential benefits, including on population health.



Harmful consumption

Consumption of tobacco, alcohol and sugary beverages are leading risk factors in the NCD epidemic facing LAC. Reducing consumption of these products is feasible and cost-effective, making it an eminently preventable risk factor if governments would take more decisive action.

In most countries, people with lower incomes tend to smoke and consume sugary beverages more than more affluent people, suffering disproportionately from the resulting health and economic consequences (NCI 2016; Sassi et al. 2018). While alcohol consumption is often higher among wealthier groups, poorer individuals who do consume alcohol are more vulnerable to alcohol consumption problems and their consequences (WHO 2014a).

Tobacco

In 2018, according to the Tobacco Atlas in nearly 70 million smokers in Latin America are at risk of tobacco-related deaths and diseases. Almost two decades after the WHO Framework Convention for Tobacco Control (FCTC) entered into force – the first international treaty specifically addressing public health – it is noteworthy that the Region of the Americas saw a decrease in prevalence of tobacco consumption from 28% in 2000 to 16.3% in 2020, ranking second lowest for this indicator in the world, preceded only by the African Region at 10.3% (PAHO 2023a).

Cigarette smoking harms almost all organs in the body. Smoking related illnesses include, but are not limited to heart disease, stroke, chronic obstructive pulmonary disease, Type 2 Diabetes, and multiple types of cancer. The impact of smoking can also extend beyond the person who uses tobacco products, affecting those who are exposed to secondhand smoke (Dai et al 2022).

In Latin America, smoking is one of the top five risk factors for death and disability, contributing to poverty through decreased productivity and out-of-pocket expenses, and resulting in \$34 billion in direct medical costs annually (Pichon 2020; GBD 2015). In 2020, the healthcare systems of eight countries that represent 80% of the Latin American population (Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico and Peru) spent US\$22.8 billion in direct medical costs to treat the conditions caused by tobacco consumption, which represents an average of 8.1% of all national

health expenditures. The economic burden for lost productivity attributable to tobacco amounted to \$16.2 billion because of premature death (\$6.4 billion) and disability (\$9.8 billion). Caregiver costs represented an additional burden of \$10.8 billion. In total, the economic losses attributable to tobacco in 2020 were \$49.8 billion, representing an average of 1.4% of the GDP of each of these countries. (Pichon 2023).

Sugar sweetened beverages

In the region, one in four adults suffer from obesity. Childhood overweight has been increasing over the last 20 years and is above the world average: it affected 7.5 percent of children under five in 2020 (PAHO 2021). The scientific evidence is robust on the link between specific dietary intake patterns and the development of obesity, overweight, and related NCDs (PAHO 2022). Sugar-sweetened beverages (SSBs) have been singled out as among the largest drivers of the obesity epidemic (PAHO 2022).

Average daily SSB consumption per adult in LAC is the highest in the world, and the mortality rate attributable to SSBs is higher than in any other region (PAHO 2022). A recent study showed that SSB consumption is associated with a substantial health and economic burden in Argentina, Brazil, Trinidad and Tobago, and El Salvador (Alcaraz 2023). For 1 year, SSB consumption was associated with 18 000 deaths, seven million disease events, a half million DALYs and US\$2 billion in direct medical costs in these four countries. Furthermore, more than 4.3 million cases of obesity and overweight and 2.2 million cases of diabetes could be attributed to SSBs consumption. Twelve per cent of all obesity cases in children and adolescents and 19% of the total cases of T2DM in adults were associated with SSBs consumption.

Alcohol consumption

Excessive alcohol consumption leads to immediate harms, such as injuries, and longer-term harms, including liver cirrhosis and mental health issues. Alcohol consumption is particularly high in LAC (NCD Alliance 2020). Latin America's consumption of 6.5 liters of pure alcohol annually per capita makes it the third highest region in the world, after Europe at 10.1 and North America at 9.9 liters (World Health Organization's Global Health Observatory). Total adult per capita consumption in Central and South America has increased over the past 40 years, and there is also a rise of binge drinking patterns and drinking among young people. Alcohol use is the leading risk factors for disability-adjusted life-years among men in Latin America (NCD Alliance 2020).

Effectiveness of Health Taxes as policies to reduce consumption of harmful products

Out of several taxing options (e.g., customs duties, value-added or general sales taxes), excise taxes are the most important for promoting health because they change the cost to consumers of the taxed products relative to other goods. Extensive evidence shows that increasing tobacco, alcohol, and sugary beverage prices reduces demand. On average, in low- and middle-income countries, a 10 percent increase in price results in a 5 percent decline in tobacco consumption, a 6 percent decline in alcohol consumption and a 12 percent decline in sugary beverage consumption. These effects are even larger among lower socioeconomic groups and young people – high prices deter initiation and reduce use over the lifetime (Task Force on Fiscal Policy and Health 2019).

Evidence reviewed by the (Task Force on Fiscal Policy for Health, 2019) shows that tobacco taxation has been found to reduce overall mortality, severity of childhood asthma and hospitalization for heart failure, among other effects. Less consumption among pregnant women has been shown to reduce low birthweight births and overall infant mortality.

Eight countries in LAC have fully implemented the measures endorsed by the Framework Convention for Tobacco Control (FCTC), (raising taxes on tobacco, plain packaging, advertising bans and smoke-free environments). Pichon et al 2023 estimate that the benefits for these countries in the next 10 years are: 271 000 fewer expected smoking-attributable deaths, the prevention of 1.6 million cardiovascular, cancer and other disease events, and a resulting gain of 10.6 million healthy life-years. Overall, the proposed tax increases in these countries will result in a total economic benefit of \$63.8 billion. Healthcare costs averted because of reduced tobacco consumption (\$16.7 billion), and productivity and caregiver costs averted (\$17.2 billion and \$9.4 billion, respectively) are the other components of the economic benefits expected over the next 10 years.

Research has shown that excise taxes on alcohol lead to significant health benefits. These include decreases in motor vehicle accidents and fatalities, deaths from liver cirrhosis and alcohol dependence, incidences of sexually transmitted infections, and rates of homicide, rape, robbery, child abuse, spousal abuse, and workplace injuries. A review of 50 studies analyzing the effects of alcohol taxes and prices on related harms

found that a 10 percent increase in alcohol taxes resulted in a 3.5 percent reduction in alcohol-related diseases and injuries. (Wagenaar et al. 2009; cited by the Task Force on Fiscal Policy for Health 2019).

The evidence on sugary beverages is showing that excise taxes can discourage consumption without leading to alternative high calorie food intake (Saelens et al. 2021; Bleich, Dunn, and Soto 2021; Gibson, Lawman, and Bleich 2021; Oddo, Leider, and Powell 2021; Petimar et al. 2022). Consequently, raising these taxes has been shown to reduce weight gain and improve health outcomes (Colchero et al., 2015; Long et al., 2015; Wright et al., 2017).

Evaluations of sugary beverage taxes in the UK and Mexico found reductions in obesity prevalence among adolescent girls but not boys (Rogers, Cummins, et al. 2023; Gračner, Marquez-Padilla, and Hernandez-Cortes 2022). Improvements in oral health after introducing taxes on sugary beverages have been demonstrated in Mexico, the UK, and the US (Hernández-F, Cantoral, and Colchero 2021; Rogers, Conway, et al. 2023; Petimar et al. 2023). It is therefore encouraging to see that, since 2015, Chile, Dominican Republic, Ecuador, Jamaica, Mexico, Panama, and Peru have raised taxes on sugary beverages and foods with added sugars in order to reduce the prevalence of being overweight or obese.

Taxes are a crucial component of broader strategies to reduce the consumption of tobacco, alcohol, and SSBs. However, they are not a standalone solution and should be implemented alongside other cost-effective measures. These measures include mass media education campaigns, bans on smoking and drinking in public places, and prominent health warning labels on tobacco and alcohol products. Additionally, restrictions on the opening times of alcohol outlets and labelling of SSBs with health warnings are effective. There is substantial evidence supporting the effectiveness of these measures, justifying their implementation with necessary adaptations and prioritization based on each country's specific circumstances.



Social determinants specific to ageing

Aging in Latin America and the Caribbean

Latin America and the Caribbean is the fastest-aging region in the world. By 2085, LAC will be the first region where one in three people will be over age 65. Due to the aging process, older individuals are likely to develop chronic conditions, physical deterioration, and frailty, leading to functional decline and an inability to perform essential activities for independent living, ultimately resulting in care dependence. In LAC, people who reach their 65th birthday can expect to live another 18.7 years, of which an average of 13.9 will be in good health and 14.4% (almost 8 million) live in a situation of care dependence and need help performing at least one basic activity of daily living. Additional human and financial resources will be required from governments, communities, and families to meet the increasing needs of these long-term conditions (IDB 2022b).

Although biological variation may account for 25 percent of the differences of health status among older adults worldwide, the stock of health or “baseline” with which individuals enter old age is predominantly a result of the cumulative effect of the social determinants of health acting throughout people’s lives (Leopold 2013; Lyu 2016; WHO 2020), particularly education, income, and wealth (Wagg, 2021, Wu 2020). Addressing social determinants of health in early life and across the life course is key to reducing health inequalities at older ages.

Once people reach advanced ages, a large range of social and environmental factors have significant effects on a person’s quality and length of life. In other phases of adult life, people have options for mobility, social interactions, and support networks that are less available to many older people. Thus, social policies need to focus on promoting healthy aging, which is understood as a process “whereby all people of all ages are able to live a healthy, safe and socially inclusive lifestyle” (WHO 2015a). Healthy aging also implies “developing and maintaining the functional ability that enables wellbeing in older age.” International charters have been established to guide policy making for older persons’ wellbeing and healthy aging.⁷: Both approaches acknowledged several

⁷The United Nations’ Madrid International Plan of Action on Ageing (MIPAA), which emanated from the Second World Assembly on Ageing held in Madrid in 2002 (UN, 2002), and more recently the global plan of action UN Decade of Healthy Ageing (2021–2030).

factors beyond health and social care that have a major effect on health and well-being and called for cross-sectoral action to influence these determinants of health.

Social protection policies and quality of life of the elderly

Social protection policies, which include pensions, healthcare, and long-term care, are key determinants of the elderly's quality of life. Pensions help reduce poverty among older adults, while healthcare improves their health and reduces the risk of falling into poverty due to catastrophic medical expenses. Long-term care supports the well-being of those who are care-dependent and their family caregivers. The three policies are also interconnected in several ways.

Publicly funded healthcare and long-term care services positively impact income security among the elderly by reducing out-of-pocket expenses to be paid out of their pension. Investments in health and active aging, which extend healthy and productive years, boost the productivity and workforce participation of older individuals. Enhancing long-term care systems increases labor participation, particularly among women, which in turn strengthens pension systems by increasing social security contributions. Additionally, investment in long-term care can lead to savings in healthcare costs. (IDB 2022b). Estimates of the cost of LTC services in LAC are provided in BOX 5.

There is evidence to support social protection systems strengthening policies to improve quality of life of the elderly (IDB 2022b). Poverty-free healthy life expectancy at age 65 is six years longer in countries with high levels of social protection compared to those with low levels. This is measured by an index that combines the coverage and quality of pensions, healthcare, and long-term care. In the region, Argentina, Uruguay, Costa Rica, and Chile have the highest levels of social protection. Most countries perform well in pension provision, followed by healthcare, where coverage generally surpasses quality. Long-term care is the weakest area, with most countries performing poorly in both coverage and quality due to underdeveloped systems

Countries must undertake reforms in healthcare and long-term care to enhance coverage and quality, while also striving to make pension expenditure more equitable across socioeconomic groups, with the overarching goal of ensuring the overall sustainability of social protection systems. Policymakers need to consider the synergies and trade-offs among these three domains. For instance, pension reforms aimed at bolstering fiscal sustainability through reductions in certain groups' benefits are more likely to garner societal acceptance if accompanied by enhancements in healthcare

coverage and quality, as well as long-term care benefits. Additionally, healthcare and long-term care reforms can better align their services to enhance efficiency (IDB 2022b).

BOX 5 **Long-term care cost estimates**

The IDB Group designed a simulation tool to calculate the cost of LTC systems (Medellin 2020). It was applied to seven countries (Argentina, Chile, Costa Rica, El Salvador, Mexico, Paraguay, and Uruguay), and the results show that the cost of a long-term care system focused on older people (age 60 or over) could range from 0.5% to 1.0% of GDP for a generous package of services (i.e., services in residential care settings and day centers, personal home care, telecare, and respite services) and universal coverage. The cost of a long-term care system could range from 0.5% to 1.0% of GDP, based on a generous package of services with universal coverage for older people. The cost could drop to between 0.3% and 0.5% of GDP for a package of services covering 80% of severely care-dependent older people. These values are lower than the expenditure of OECD countries, which on average is 1.7% of GDP (Cafagna et al., 2019).

Employment

Older people can contribute to the economy and often wish to continue working beyond retirement age, as employment improves economic security and enables them to maintain autonomous and independent lives. Beyond economic benefits, continuing to work can provide older adults with a sense of purpose, foster social connections, offer structured routines, and encourage lifelong learning, all important conditions for physical, mental and cognitive well-being. Workplace practices that support older workers, such as flexible working hours, retraining programs, and age-friendly work environments, are examples of policies to create opportunities for older adults to remain employed (WHO 2019).

Lifelong learning

Providing opportunities for older adults to continue their education through formal or informal courses, workshops, and community classes to improve literacy, gain vocational skills or for personal enrichment empowers them to cope with the health challenges of aging through diverse pathways. Improved health literacy enables individuals to better understand medical information, adhere to treatment regimens, and engage in preventive health behaviors, thereby reducing the risk, severity and complications of chronic diseases. Health literacy also promotes healthier lifestyle choices, such as regular physical activity and balanced nutrition. Engaging in learning activi-

ties is believed to enhance cognitive reserve and delay cognitive decline. Additionally, through education the elderly may broaden their social networks, which is important for emotional support and reduce isolation (Narushima 2018; Boulton Lewis 2010). Digital literacy may be a key to support healthy aging (see Box 6).

BOX 6

Digital literacy and aging

A promising area in lifelong learning is the acquisition of skills and knowledge to use digital technologies. Tools such as artificial intelligence (AI), smart wearables, and the Internet of Things (IoT) help older adults become more self-reliant by monitoring vital signs, tracking behavioral changes, facilitating interactions with healthcare providers, providing health information, and sending timely alerts during emergencies. Age-friendly digital environments can enhance the functional abilities of individuals with varying mental and physical capacities and help combat social isolation. For example, during COVID-19, older adults with internet access and the necessary tech skills were better able to stay connected with family, access up-to-date information and virtual medical care. Additionally, being able to use technology to buy essential items like medicine and food can be an aid for independent living for older persons (PAHO 2023b).

Opportunities for social inclusion

Social participation involves maintaining social relationships, feeling connected to a network of family, friends, and community, and engaging in meaningful, productive, and stimulating activities. Evidence shows social engagement and participation in older age supports quality of life, health and wellbeing (Handler 2014). Those with active social relationships tend to be happier with their lives and less likely to experience poor health and depression. Additionally, involvement in social support networks boosts morale, protects health, and mitigates the effects of cognitive aging. An insufficient number of social connections, and loneliness is a modifiable factor that can make a big difference in health and wellbeing of the elderly (National Academies of Sciences 2020).

Although highly context specific, examples of strategies to promote social participation for older adults, are the following⁸:

- Locating events and activities in neighborhood areas, with convenient schedules and easy admission processes, considering affordability.

⁸ <https://health.gov/our-work/national-health-initiatives/healthy-aging/social-determinants-health-and-older-adults>

- Ensuring accessibility of facilities to accommodate individuals with disabilities or those requiring care.
- Targeted promotion and communication about activities, including details on accessibility and transportation options.
- Community facilities should promote shared use across different age groups and interests to foster interaction and integration among users.

Age friendly cities and communities

Neighborhood and the built environment available to people as they grow older play a major role in their physical health, well-being, and functioning. Specific domains of policy action for age friendly cities and communities proposed by WHO include: outdoor spaces, transport and mobility, housing, social participation, social inclusion and non-discrimination, civic engagement and employment, communication and information and community support and health services (WHO 2015b).

Ageism. Attitudes towards older people

Ageism is a form of discrimination that arises when age is used to categorize people in ways that lead to harm, disadvantage, or injustice (WHO, 2021). Although it affects people of all ages, the elderly experience ageism distinctly. Ageism in health and social care takes place when medical procedures or treatments such as ventilation or dialysis are withheld for older people, or in the case of the long-term care sector, caregivers may use controlling language and patronizing patterns of communication. In the workplace, ageism is manifested in involuntary retirement due to age bias, and less access to training and job opportunities. Ageism can be internalized by an individual, resulting in self-exclusion from continued opportunities for learning and growth in later life. Ageism is associated with worse health outcomes for the elderly in diverse domains, such as earlier death, poor physical health and recovery from disability, risky health behaviors such as not adhering to medications, onset of depression, and cognitive deteriorations, amongst others (WHO 2021).

Several Interventions against ageism are available. First, policies and legislation that address age discrimination and inequality and human rights laws. There is some evidence of their effectiveness. For example, the introduction of the Age Discrimination in Employment Act in the United States in 1967, which recognizes only bias against older workers, caused a small positive and significant effect on overall employment

for older workers (WHO 2021). The national legal and policy frameworks of Uruguay prohibit any discrimination on the basis of age and guarantee older and younger persons and includes a specific ban on discriminating against any worker on the grounds of age, yet evaluation of the impacts has not been carried out.

Second, educational interventions to dispel misconceptions about different age groups and reduce prejudice and discrimination, and intergenerational contact interventions. A 2019 systematic review of 23 educational interventions in high income countries aimed at reducing ageism found that educational interventions had a small to medium effect on attitudes towards ageing and older people, including on stereotypes and prejudice, and a small to medium effect on knowledge of ageing including effects on information and misconceptions about the ageing process (WHO 2021). The Aging Game is one of the few educational interventions shown to be effective and whose cost has been estimated (Pacala 2006; Pacala 1995). In the Aging Game, medical students experience simulated physical, sensory and cognitive deficits, which tend to increase with age. The game has been shown to improve medical students' attitudes toward caring for elders. The intervention takes half a day and involves some 30 students at a time. It was estimated to cost about US\$ 33 per workshop per student in 2006.

Third, intergenerational contact interventions aim to foster interaction between people of different generations. These involve bringing together older and younger people to work cooperatively on tasks to encourage cross-generational bonding and understanding. A systematic review that included evaluations of 21 different intergenerational contact interventions aimed at reducing ageism against older people in high income countries found that they had a small effect on attitudes including on stereotypes and prejudice, and a moderate effect on knowledge and misconceptions of the aging process (Burnes 2019).

4

Multisectoral approaches

The interrelatedness of all aspects of human life is the underlying reason that multi-sector action may be more effective than any single intervention on its own. While this paper focuses on social determinants of health, these same factors also relate to one another in many ways (see Table 3). Health is affected by early childhood development, working conditions, income, and the effects of climate change. However, in the other direction, health and early childhood development also affect labor and employment by increasing individual productivity. Furthermore, they give people greater physical resilience to cope with changes caused by climate change, such as high temperatures and drought. Thus, whether considering the interventions required to improve health or evaluating the benefits of health to other aspects of human life, multisector thinking is essential.

There are three well known proposed multisectoral approaches with health improvement as the main objective. The Health in All Policies (HiAP) seeks to ensure that public policy decisions across sectors like finance, education, and transportation consider health implications to improve population health and equity (PAHO,n.d). The Healthy Cities initiative promotes local intersectoral collaboration and community action, enhancing urban policymakers' ability to address health issues (Werna 1998). The One Health approach recognizes the interconnectedness of human, animal, and environmental health, bringing together stakeholders from diverse sectors and disciplines to address health challenges (Centers for Disease Control and Prevention, 2022).

Multisectoral initiatives vary considerably, and examples provide a good basis for envisioning how they can be practically implemented. The Brazilian Strategy to Prevent and Care for Childhood Obesity (PROTEJA) is just such an example. It is a national initiative to address childhood obesity through multisectoral actions (Bortolini 2023).

PROTEJA was formulated by the Brazilian Ministry of Health (MOH) based on epidemiological analyses of obesity data and selection of effective interventions from literature reviews and stakeholder consultations. They defined a set of actions addressing the multiple determinants of childhood obesity, including access to quality health services, school measures (i.e., availability of healthy foods and water), healthy cities (i.e., urban spaces for exercise), and public campaigns for adequate and healthy eating and physical activity.

Although all states, the Federal District, and municipalities can implement PROTEJA, the MOH established a financial incentive for municipalities to adopt PROTEJA actions during 2021-2023. Due to budget constraints, priority was given to municipalities

TABLE 3
Multiple and reciprocal effects, selected social determinants of health



	Health	Aging	Labor & Employment	Water & Sanitation	Climate	Early Childhood Development
This sector...						
Health		Autonomy, Social Participation, Healthcare costs	Higher productivity, incomes	Risk of spreading infectious disease	Individual & group resilience	Mental & physical development
Aging	Stresses, illness, accidents		Length of work life	Ability to obtain water	Individual & group resilience	Eldering, childcare
Labor & Employment	Income, work risks, stress	Working conditions & retirement		Access to water & sanitation	Ecological impact of work	Ability to afford childcare & other ECD support
Water & Sanitation	Hydration, infection	Hydration, infection	Absenteeism		Resilience, respond to drought & flood	Hygiene for young children
Climate	Heat stress, natural disasters,	Heat stress, natural disasters	Changing labor market, job loss	Drought, flooding		Heat stress, natural disasters
Early Childhood Development	Lasting impact on life cycle health	Lasting impact on life cycle health	Productivity, incomes	Risk of spreading infectious disease	Resilience	

based on several criteria, including those with less than 30,000 inhabitants, and prevalence of overweight greater than or equal to 15%. A total of 1,320 municipalities committed to implement 20 mandatory actions (i.e., ensure at least 15 minutes of physical activity in schools, manage obesity according to protocol, create circuits of fairs and other healthy food marketing strategies) and at least five out of 41 complementary actions according to their specific needs. Coordinated by the MOH in partnership with subnational governments and universities, PROTEJA relies on a local team for

implementation support, implementation, and impact evaluations. In October 2022, 1292 municipalities (97.9% of the 1320 participating municipalities) were able to show improvements in the three indicators established by the Ministry of Health and measured by a monitoring system, that is: (i) an increased number of children have been evaluated for their nutritional status; (ii) an increased number of children have been assessed for their dietary behavior (food consumption markers); and (iii) an increased number of obesity-related consultations have been held in primary health care.

There is a large and growing body of case studies describing multisectoral approaches that can collectively provide valuable insights about the processes of policy formulation and implementation.⁹ However, thus far, there are too few studies to definitively evaluate the effectiveness of multisectoral approaches. Future work is needed to expand the evidence base on implementation and sustainability of multisectoral approaches, to assess the benefits of collaboration, and to evaluate impact. Knowledge generation on this approach can be strengthened through more implementation research and use of mixed methods, including quantitative assessment of implementation and outcomes over the mid-term to long term (Ortenzi et al., 2022; Glandon et al 2019).

⁹ For example, see the Global Network for Health in All Policies. Compendium report on multisectoral actions for the prevention and control of noncommunicable diseases and mental health conditions: country case studies



5

Conclusions and recommendations

This paper has reviewed the evidence on SDH and illustrated how interventions in different social, economic, and environmental sectors can influence health and wellbeing. It demonstrates that SDH are indeed a major factor in health and wellbeing, and that many of the largest risks to health have proven cost-effective interventions beyond those available within the purview of medical care, public health, and health systems.

Key messages

Among the factors affecting an individual's lifetime health chances are their genetics, their individual behaviors, and their social and environmental context. The SDH approach encompasses the contextual factors, emphasizing social factors that not only influence health outcomes directly but also indirectly influence health by their effects on individual behaviors and environmental exposures. Excluding factors which affect access to quality healthcare, SDH is estimated to account for between $\frac{1}{2}$ and $\frac{2}{3}$ of the disease burden. While some social determinants are costly or difficult to change in the short run, others are both cost-effective and timely in their effects.

Countries that successfully reduce the health risks associated with social determinants of health will experience less pressure on their healthcare systems, allowing them to make quicker progress toward:

- Universal Health Coverage,
- achieving SDG 3 (“Ensure healthy lives and promote wellbeing for all at all ages”),
- lowering the financial costs of providing healthcare services,
- improving equity in the provision of healthcare services, and
- contributing to equity in health outcomes.

A healthy social and environmental context helps countries before emergencies by giving healthcare systems time to plan and prepare for crises, lowers the risks of transmission, and can forestall some crises when strong social capital and education encourages collaboration with public health policies. During a crisis, countries with healthier social and environmental contexts are less likely to have overloaded healthcare systems. This allows them to respond to emergencies more quickly and with greater flexibility in addressing both emergency and non-emergency healthcare needs without overworking healthcare staff.

Health inequities are a consequence of multiple social and environmental factors, making multisectoral approaches necessary for promoting equitable health out-

comes. People in households with lower socioeconomic status tend to live shorter and less healthy lives than those in higher status segments of the population. This inequitable outcome results from multiple, mutually reinforcing and generally correlated social and environmental factors including poor access to good quality education, housing, and food; greater exposure to air, water, and soil pollutants; and less voice and influence in the political decisions that affect their lives. These factors are reinforced across generations by limited resources for raising physically and mentally healthy, well-educated, and resilient children. Therefore, effective policies for promoting health equity use integrated strategies that are explicitly designed to achieve health goals in multiple sectors (as in the “Health in All Policies” approach).

Recommendations

The main recommendation emerging from this review is for countries, and the agencies that support them, to initiate multi-sectoral planning of public policies and actions for SDH. This planning, along with the resulting policies and programs, should be designed with explicit attention to the goals of improving population health and reducing health inequities. Multi-sectoral action can be initiated by national level agencies with inducements for local engagement, as in Brazil’s PROTEJA program for reducing childhood obesity. It can also be convened at the community or metropolitan level as in numerous experiences from the “Healthy Cities” program. Even broader, national-level, planning exercises – such as Health in All Policies or One Health – can bring together public agencies and citizens to address a more complete range of SDH related to fiscal policies, local and regional environmental exposures, healthy diets, access to quality social services, supportive built environments, adequate incomes, and employment opportunities.

Such multi-sector initiatives can avail themselves of current evidence on cost-effective interventions in many spheres. Much of this literature provides recommendations for action which may be worthwhile even in the absence of multi-sector collaboration. In particular, with the support of international agencies, countries should consider:

- establishing and expanding early childhood development programs that address children’s needs for mental stimulation, supportive families, and healthy diets;
- zoning, building codes, and public infrastructure that promote healthy built environments, including green space and encouragement of physical exercise;
- significantly raising excise taxes on cigarettes, the single-most cost-effective measure for improving population health available today;

- adopting or improving cash transfer programs in ways that best empower households to improve their current wellbeing and invest in their futures;
- introducing or improving cost-effective services that promote healthy aging, including adequate pensions, support for aging at home when appropriate, opportunities for social engagement, and long-term care options.

In sum ...

Additional research is needed to identify policies that address multiple social and environmental factors and to measure and monitor health equity on a national and global scale. However, current evidence has already demonstrated the significant impact of social and environmental factors on health and numerous highly cost-effective SDH interventions. Furthermore, several documented experiences suggest that multi-sectoral action may be particularly effective, especially when health outcomes are used as a metric for guiding and orienting cross-sector planning. Both sector-specific and multi-sector SDH initiatives have demonstrably improved population health and equity. Pursuing policies that address SDH are therefore an important complement to investments in healthcare service systems when seeking ways to make progress toward Universal Health Coverage and to build a healthier future for all.



References

Abud, T., Kounidas, G., Martin, K. R., Werth, M., Cooper, K., & Myint, P. K. (2022). Determinants of healthy ageing: A systematic review of contemporary literature. *Aging Clin Exp Res*, 34(6), 1215-1223. <https://doi.org/10.1007/s40520-021-02049-w>.

Akee, R., & Clark, L. R. (2023). Universal Preschool Lottery Admissions and Its Effects on Long-Run Earnings and Outcomes. *Working Papers*. <https://ideas.repec.org/p/cen/wpaper/23-09.html>.

Alcaraz, A., Bardach, A. E., Espinola, N., Perelli, L., Rodriguez Cairolí, F., La Foucade, A., De Mello Vianna, C. M., Guevara, G., Gittens-Baynes, K.-A., Johns, P., Beharry, V., Balán, D. J., Palacios, A., Augustovski, F., & Pichon-Riviere, A. (2023). Health and economic burden of disease of sugar-sweetened beverage consumption in four Latin American and Caribbean countries: A modelling study. *BMJ Open*, 13(2), e062809. <https://doi.org/10.1136/bmjopen-2022-062809>

Allen, J., & Marmot, M. (2014). *Social determinants of mental health*. World Health Organization & Fundação Calouste Gulbenkian http://apps.who.int/iris/bitstream/10665/112828/1/9789241506809_eng.pdf?ua=1

Anderson, L. M., Shinn, C., Fullilove, M. T., Scrimshaw, S. C., Fielding, J. E., Normand, J., & Carande-Kulis, V. G. (2003). The effectiveness of early childhood development programs. A systematic review. *Am J Prev Med*, 24, 32-46.

Angelucci, M. (2008). Love on the Rocks: Domestic Violence and Alcohol Abuse in Rural Mexico. *The B.E. Journal of Economic Analysis & Policy*, 8(1)

Anza-Ramirez, C., Lazo, M., & Zafra-Tanaka, J. H. (2022). The urban built environment and adult BMI, obesity, and diabetes in Latin American cities. *Nat Commun*, 13, 7977. <https://doi.org/10.1038/s41467-022-35648-w>

Araujo, M. C., Dormal, M., Grantham-McGregor, S., Lazarte, F., Rubio-Codina, M., & Schady, N. (2021). Home Visiting at Scale and Child Development. *Journal of Public Economics Plus*, 2, 100003. <https://doi.org/10.1016/j.pubecp.2021.100003>.

Astell-Burt, T., & Feng, X. (2019). Association of urban green space with mental health and general health among adults in Australia. *JAMANetwork Open*, 2(7), 198209.

Astell-Burt, T., Hartig, T., Eckermann, S., Nieuwenhuijsen, M., McMunn, A., Frumkin, H., & Feng, X. (2022). More green, less lonely? A longitudinal cohort study. *International Journal of Epidemiology*, 51(1), 99-110. <https://doi.org/10.1093/ije/dyab089>

Astell-Burt, T. & X. (s. f.). *Feng Urban green space, tree canopy and prevention of cardiometabolic diseases: A multilevel longitudinal study of 46 786 Australians*.

Attanasio, O., Baker-Henningham, H., Bernal, R., Meghir, C., Pineda, D., & Rubio-Codina, M. (2022). Early Stimulation and Nutrition: The Impacts of a Scalable Intervention. *Journal of the European Economic Association*, 20(ue 4), 1395-1432. <https://doi.org/10.1093/jeaa/jvac005>

Avendano, M., & Cylus, J. (2019). *Working at older ages: Why it's important, how it affects health, and the policy options to support health capacity for work*. European Observatory on Health Systems and Policies. <https://iris.who.int/handle/10665/329447>

Bai, Y., Ladd, H. F., Muschkin, C. G., & Dodge, K. A. (2020). Long-Term Effects of Early Childhood Programs through Eighth Grade: Do the Effects Fade out or Grow? *Children and Youth Services Review*, 112. <https://doi.org/10.1016/j.childyouth.2020.104890>.

Bailey, M. J., Sun, S., & Timpe, B. (2021). Prep School for Poor Kids: The Long-Run Impacts of Head Start on Human Capital and Economic Self-Sufficiency. *American Economic Review*, 111(12), 3963-4001. <https://doi.org/10.1257/aer.20181801>.

Barr, A., & Gibbs, C. R. (2022). Breaking the Cycle? Intergenerational Effects of an Antipoverty Program in Early Childhood. *Journal of Political Economy*, 130(12), 3253-3285. <https://doi.org/10.1086/720764>.

Barreno, M., Sisa, I., & ELANS Study Group, Y. G. M. C. O. (2021). Association between built environment and physical activity in Latin American countries: A multicentre cross-sectional study. *BMJ Open*, 11:e046271. <https://doi.org/10.1136/bmjopen-2020-046271>

Barron, M., & Torero, M. (s. f.). *Household electrification and indoor air pollution*.

Bastagli, F., Hagen-zanker, J., Harman, L., Barca, V., Sturge, G., & Schmidt, T. (2019). The Impact of Cash Transfers: A Review of the Evidence from Low- and Middle-income Countries. *Journal of Social Policy*, 48(3), 569-594. <https://doi.org/10.1017/S0047279418000715>

Bastos, P., Bottan, N. L., & Cristia, J. (2017). Access to Preprimary Education and Progression in Primary School: Evidence from Rural Guatemala. *Economic Development and Cultural Change*, 65(3), 521-547. <https://doi.org/10.1086/691090>.

Bastos, P., Cristia, J., & Kim, B. (2016). *Good Schools or Good Students? Evidence on School Effects from Universal Random Assignment of Students to High Schools*.

Bauer, A., Garman, E., McDaid, D., Pabon, M. A., Hessel, P., Díaz, Y., Baltra, R. A., Lund, C., Malvasi, P., Matijasevich, A., Park, A.-L., Paula, C. S., Ziebold, C., Zimmerman, A., & Evans-Lacko, S. (2021). Integrating Youth Mental Health into Cash Transfer Programmes in response to the COVID-19 Crisis in Low- and Middle-income Countries. *Lancet Psychiatry*, 8(4), 340-346. [https://doi.org/10.1016/s2215-0366\(20\)30382-5](https://doi.org/10.1016/s2215-0366(20)30382-5)

Becker, B. E., & Luthar, S. S. (2002). Social-emotional factors affecting achievement outcomes among disadvantaged students: Closing the achievement gap. *Educ Psychol*, 37, 197-214. https://doi.org/10.1207/S15326985EP3704_1

Benzeval, M., Lorenc, T., Petticrew, M., Campbell, M., Egan, M., Bond, L., & Petticrew, M. (2014). *How Does Money Influence Health?* Joseph Rowntree Foundation <https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/income-health-poverty-full.pdf>

Berlinski, S., Galiani, S., & Gertler, P. (2009). The Effect of Pre-Primary Education on Primary School Performance. *Journal of Public Economics*, 93(1), 219-234. <https://doi.org/10.1016/j.jpubeco.2008.09.002>.

Berlinski, S., Galiani, S., & Manacorda, M. (2008). Giving Children a Better Start: Preschool Attendance and School-Age Profiles. *Journal of Public Economics*, 92(5-6), 1416-1440.

Berlinski, S., & Schady, N. (2015). *The Early Years: Child Well-Being and the Role of Public Policy*. Springer Nature.

Bilal, U. (2021). Spatial Inequities in COVID-19 Testing, Positivity, Confirmed Cases and Mortality in 3 US Cities: An Ecological Study. *Annals of Internal Medicine*, 174(7), 936-944. <https://doi.org/10.7326/M20-3936>.

Bilal, U., Alazraqui, M., Caiaffa, W. T., Lopez-Olmedo, N., Kevin Martinez-Folgar, J. J. M., Rodriguez, D. A., Vives, A., & Diez-Roux, A. V. (2019). Inequalities in Life Expectancy in Six Large Latin American Cities from the SALURBAL Study: An Ecological Analysis. *The Lancet Planetary Health*, 3(12), 503-510. [https://doi.org/10.1016/S2542-5196\(19\)30235-9](https://doi.org/10.1016/S2542-5196(19)30235-9).

Black, M., Behrman, J., Daelmans, B., Prado, E., Richter, L., Tomlinson, M., Trude, A. C. B., Wertlieb, D., Wuermli, A. J., & Yoshikawa, H. (2021). The Principles of Nurturing Care Promote Human Capital and Mitigate Adversities from Preconception through Adolescence. *BMJ Global Health*, 6(4), 004436. <https://doi.org/10.1136/bmjgh-2020-004436>.

Black, M., Walker, S., Fernald, L., Andersen, C., DiGirolamo, A., Lu, C., & McCoy, D. (2017). *Early Childhood Development Coming of Age: Science through the Life Course* (Vol. 389, Número 10064, pp. 77-90). [https://doi.org/10.1016/S0140-6736\(16\)31389-7](https://doi.org/10.1016/S0140-6736(16)31389-7).

Blanco, M., Cabrera, J., Carozzi, F., & Cid, A. (2017). *Effects of Motorcycle Helmet Laws on Fatalities' Prevention: An Impact Evaluation*.

Bleich, S. N., Dunn, C. G., & Soto, M. J. (2021). Association of a Sweetened Beverage Tax with Purchases of Beverages and High-Sugar Foods at Independent Stores in Philadelphia. *JAMA Netw Open*, 4(6).

Blum, A., & Eke, R. (2021). Tobacco control: All research, no action. *Lancet*, 202, 2310-2311.

Boo, L., Florencia, J. L., & Akito, K. (2023). *Home Visiting at Scale, Home Visit Quality, and Child Development: Experimental Evidence from Nicaragua*.

Bortolini, G. A., Pereira, T. N., Carmo, A., Thomaz Maya Martins, A. M., Silva, J., Silva, S., Marinho, S., Lima, A. M., Spaniol, A. M., Salvador Claumann, G., Silveira, J. A., & Silva, J. (2023). Analysis of the elaboration and proposal of a Brazilian intersectoral strategy for the prevention and care of childhood obesity. *Cad. Saúde Pública*, 39(10), e00117722.

Boulton-Lewis, G. (2010). Education and Learning for the Elderly: Why, How, What. *Educational Gerontology*, 36, 213-228. <https://doi.org/10.1080/03601270903182877>.

Britto, P. R., Lye, S. J., Proulx, K., Yousafzai, A. K., Matthews, S. G., & Vaivada, T. (2017). Nurturing care: Promoting early childhood development. *Lancet*, 389, 91-102. [https://doi.org/10.1016/S0140-6736\(16\)31390-3](https://doi.org/10.1016/S0140-6736(16)31390-3)

Brunner E., Marmot M. G. (2006). Social Organization, Stress, and Health. In M. G. Marmot, R. G. Wilkinson (Eds.), *Social Determinants of Health*. Oxford University Press.

Burnes, D., Sheppard, C., Henderson, C. R., Wassel, M., Cope, R., Barber, C., & Pillemer, K. (2019). Interventions to Reduce Ageism Against Older Adults: A Systematic Review and Meta-Analysis. *American Journal of Public Health*, 109(8), e1-e9. <https://doi.org/10.2105/AJPH.2019.305123>

Busso, M. & Messina, J. (2020) *The Inequality Crisis: Latin America and the Caribbean at the Crossroads*. Inter-American Development Bank.

Cafagna, G., Aranco, N., Ibararán, P., Medellín, N., Oliveri, M. L., & Stampini, M. (2019). *Age with Care: Long-term Care in Latin America and the Caribbean*. Inter-American Development Bank. <https://doi.org/10.18235/0001972>.

Calatayud, A., González, S. S., Maya, F. B., Giraldez, F., & Márquez, J. M. (2021). *Urban road congestion in Latin America and the Caribbean: Characteristics, costs, and mitigation*. Interamerican Development Bank.

Campbell, F., Conti, G., Heckman, J. J., Moon, S. H., & Pinto, R. (2014). Elizabeth Pungello, and Yi Pan Early Childhood Investments Substantially Boost Adult Health. *Science*, 343(ue 6178), 1478-1485. <https://doi.org/10.1126/science.1248429>

Campbell-Lendrum, D., & Prüss-Ustün, A. (2019). Climate change, air pollution and noncommunicable diseases. *Bull World Health Organ*, 97(2), 160-161.

Canadian Council Social Determinants of HealthCCSDH. (2015). *A Review of Frameworks on the Determinants of Health*.

Centers for Disease Control and Prevention. (2022). *One Health Basics*. <https://www.cdc.gov/onehealth/basics/index.html>

Cerda, M., Morenoff, J., Hansen, B., Hicks, K., Duque, L., Restrepo, A., Roux, D., & Ana (Eds.). (2012). Reducing Violence by Transforming Neighborhoods: A Natural Experiment in Medellín, Colombia. *American Journal of Epidemiology*, 175, 1045-1053.

Cerin, Ester et al. (s. f.). Determining thresholds for spatial urban design and transport features that support walking to create healthy and sustainable cities: Findings from the IPEN Adult study. *The Lancet Global Health*, 10(6), 895-906.

Coelho, D. M., Souza Andrade, A. C., & Silva, U. M. (2023). Gender differences in the association of individual and contextual socioeconomic status with hypertension in 230 Latin American cities from the SALURBAL study: A multilevel analysis. *BMC Public Health*, 23, 1532. <https://doi.org/10.1186/s12889-023-16480-3>

Colchero, M. A., Rivera-Donmarco, J., Popkins, B. M., & Ng, S. W. (2017). In Mexico, Evidence Of Sustained Consumer Response Two Years After Implementing A Sugar-Sweetened Beverage Tax. *Health Affairs*.

Colchero, M. A., Salgado, J. C., Unar-Mungu'ia, M., Molina, M., Ng, S., & Rivera-Dommarco, J. A. (2015). Changes in Prices After an Excise Tax to Sweetened Sugar Beverages Was Implemented in Mexico: Evidence from Urban Areas. *Nugent. PLOS ONE*, 10(12), 0144408. <https://doi.org/10.1371/journal.pone.0144408>.

Corburn, J., & Sverdlik, A. (2019). *Informal Settlements and Human Health: A Framework*. https://doi.org/10.1007/978-3-319-74983-9_9.

Cortázar, A. (2015). Long-Term Effects of Public Early Childhood Education on Academic Achievement in Chile. *Early Childhood Research Quarterly*, 32, 13-22. <https://doi.org/10.1016/j.ecresq.2015.01.003>.

Cueto, S., León, J., Miranda, A., Dearden, K., Crookston, B. T., & Behrman, J. R. (2016). Does Pre-School Improve Cognitive Abilities among Children with Early-Life Stunting? A Longitudinal Study for Peru. *International Journal of Educational Research*, 75, 102-114. <https://doi.org/10.1016/j.ijer.2015.09.011>.

Dadvand, P., Nieuwenhuijsen, M. J., Esnaola, M., Forns, J., Basagaña, X., Alvarez-Pedrerol, M., Rivas, I., López-Vicente, M., Castro Pascual, M., Su, J., Jerrett, M., Querol, X., & Sunyer, J. (2015). Green spaces and cognitive development in primary school children. *Proc. Natl. Acad. Sci*, 112(26), 7937-7942.

Dai, X., Gil, G. F., & Reitsma, M. B. (2022). Health effects associated with smoking: A Burden of Proof study. *Nat Med*, 28, 2045-2055. <https://doi.org/10.1038/s41591-022-01978-x>

De Lima Friche, Amelia A et al. (2015). Urban upgrading and its impact on health: A “quasi-experimental” mixed-methods study protocol for the BH-Viva Project. *Cad. Saúde Pública*, 31(suppl 1).

Deming, D. (2009). Early Childhood Intervention and Life-Cycle Skill Development: Evidence from Head Start. *American Economic Journal: Applied Economics*, 1(3), 111-134. <https://doi.org/10.1257/app.1.3.111>.

Díaz, J.J., & Saldarriaga, V. (2022). (Un)Conditional Love in the Time of Conditional Cash Transfers: The Effect of the Peruvian JUNTOS Program on Spousal Abuse. *Economic Development and Cultural Change*, 70(2).

Donkin, Angela, Peter Goldblatt, Jessica Allen, Vivienne Nathanson, and Michael Marmot. 2018. “Global Action on the Social Determinants of Health.” *BMJ Global Health* 3(Suppl 1): e000603. doi:[10.1136/bmjgh-2017-000603](https://doi.org/10.1136/bmjgh-2017-000603).

Drange, Havnes 2019; Drange, N., & Havnes., T. (2019). Early Childcare and Cognitive Development: Evidence from an Assignment Lottery. *Journal of Labor Economics*, 37(2), 581-620. <https://doi.org/10.1086/700193>

ECLAC (2023). *Social Panorama of Latin America and the Caribbean*. Comisión Económica para América Latina y el Caribe.

ECLAC. (2020). *El desafío social en tiempos del COVID-19*. Comisión Económica para América Latina y el Caribe. <https://www.cepal.org/es/publicaciones/45527-desafio-social-tiempos-covid-19>.

Elvik, R., Vaa, T., Erke, A., & Sorensen, M. (2009). *The handbook of road safety measures*. Emerald Group Publishing.

Eslava-Schmalbach, J., Garzón-Orjuela, N., Elias, V., Reveiz, L., Tran, N., & Langlois, E. V. (2019). Conceptual framework of equity-focused implementation research for health programs (EquiR. *International Journal for Equity in Health*, 18(1), 1-11. <https://doi.org/10.1186/S12939-019-0984-4>

Evans, D. K., Jakiela, P., & Acosta, A. M. (2024). The Impacts of Childcare Interventions on Children's Outcomes in Low- and Middle-Income Countries: A Systematic Review. *CGD Working Paper*, 676. <https://www.cgdev.org/publication/impacts-childcareinterventions-childrens-outcomes-low-and-middle-income-countries>

Fishman, E., Washington, S., & Haworth, N. (2014). Bike share's impact on car use: Evidence from the United States, Great Britain, and Australia. *Transportation Research Part D: Transport and Environment*, 31, 13-20.

Fogel, R. W. (2012). *Explaining Long-Term Trends in Health and Longevity*. Cambridge University Press.

Friedman-Krauss, A., & Barnett, S. (2020). *Special Report Access to High-Quality Early Education and Racial Equity* [Special Report.]. <https://nieer.org/policy-issue/special-report-access-to-high-quality-early-education-and-racial-equity>.

Hutton G, & Whittington D. (2015). *Benefits and costs of the water sanitation and hygiene targets for the post-2015 development agenda*. Copenhagen Consensus Center.

Galiani, S. (2015). *The Half-Life of Happiness: Hedonic Adaptation in the Subjective Well-Being of Poor Slum Dwellers to a Large Improvement in Housing*. National Bureau of Economic Research.

Galiani, S., Gertler, P.J., & Undurraga, R. (2014). *Shelter from the Storm: Upgrading Housing Infrastructure in Latin American Slums*. Inter-American Development Bank.

Galiani, S., & Schargrodsky, E. (2004). *Effects of land titling on child health. Economics & Human Biology*, 2(3), 353-372.

Garces, T., Currie 2002; Garces, D. T., Eliana, & Currie., J. (2002). Longer-Term Effects of Head Start. *American Economic Review*, 92(4), 999-1012. <https://doi.org/10.1257/00028280260344560>.

García, J. L., Heckman, J., Leaf, D. E., & Prados, M. J. (2020). Quantifying the Life-Cycle Benefits of an Influential Early-Childhood Program. *Journal of Political Economy*, 128(7), 2502-2541.

García, J. L., Heckman, J., & Ronda, V. (2022). The Lasting Effects of Early Childhood Education on Promoting the Skills and Social Mobility of Disadvantaged African Americans and Their Children. *Journal of Political Economy*. <https://doi.org/10.1086/722936>.

Gascon, M., Triguero-Mas, M., Martínez, D., Dadvand, P., Forn, J., Plasencia, A., & Nieuwenhuijsen, M. (2015). Mental health benefits of long-term exposure to residential green and blue spaces: A systematic review. *Int. J. Environ. Res. Public Health*, 12(4), 4354-4379.

GBD (2017). Tobacco collaborators. Smoking prevalence and attributable disease burden in 195 countries and territories, 1990-2015: A systematic analysis from the global burden of disease study 2015. *Lancet*, 389.

GBD (2018). Risk factor collaborators. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990-2017: A systematic analysis for the global burden of disease study 2017. *Lancet*, 392(1923-94).

GBD US Health Disparities Collaborators. (2022 Jul 2). Life expectancy by county, race, and ethnicity in the USA, 2000-19: a systematic analysis of health disparities. *Lancet*. 400(10345):25-38. doi: 10.1016/S0140-6736(22)00876-5. Epub 2022 Jun 16. PMID: 35717994; PMCID: PMC9256789

Gentilini, U. (2022a). *Cash Transfers in Pandemic Times: Evidence, Practices, and Implications from the Largest Scale Up in History*. World Bank.

Gentilini, U. (2022b). Social protection and job responses to COVID-19: A real-time review of country measures. *Open Knowledge Repository Beta*. <https://openknowledge.worldbank.org/handle/10986/37186>

Gentilini, U., Grosh, M., Rigolini, J., & Yemstov, R. (2020). *Exploring Universal Basic Income: A Guide to Navigating Concepts, Evidence, and Practices*. World Bank.

Gertler, P., Cattaneo, M., Galiani, S., Martinez, S. A. T., & R. (2012). *Evaluación de Resultados de Impacto del Programa Piso Firme Estado de Coahuila*. SEDESOL.

Gibson, L., Lawman, H., & Bleich, S. (2021). No Evidence of Food or Alcohol Substitution in Response to a Sweetened Beverage Tax. *Am J Prev Med*, 60(2).

Gibson, M. (2020). The public health effects of interventions similar to basic income: A scoping review. *The Lancet Public Health*, 5(ue 3), 165-176.

Giles-Corti, B., Moudon, A. V., Lowe, M., Cerin, E., Boeing, G., Frumkin, H., Salvo, D., Foster, S., Kleeman, A., Bekessy, S., De Sá, T. H., Nieuwenhuijsen, M., Higgs, C., Hinckson, E., Adlakha, D., Arundel, J., Liu, S., Oyeyemi, A. L., Nitvimol, K., & Sallis, J. F. (2022). What next? Expanding our view of city planning and global health, and implementing and monitoring evidence-informed policy. *The Lancet Global Health*, 10(6), e919-e926. [https://doi.org/10.1016/S2214-109X\(22\)00066-3](https://doi.org/10.1016/S2214-109X(22)00066-3)

GiveDirectly. (2023). *Early findings from the world's largest UBI study*. <https://www.givedirectly.org/2023-ubi-results/>

Glandon, D., Mondal, S., Okeyo, I., Zaidi, S., Khan, M. S., Dar, O., & Bennett, S. (2019). Methodological gaps and opportunities for studying multisectoral collaboration for health in low- and middle-income countries. *Health Policy and Planning*, 34(ue Supplement_2), 7-17. <https://doi.org/10.1093/heapol/czz116>

Gouveia, N., Rodriguez-Hernandez, J. L., Kephart, J. L., Ortigoza, A., Betancourt, R. M., Sangrador, J. L. T., Rodriguez, D. A., Roux, A. V. D., Sanchez, B., & Yamada, G. (2024). Short-term associations between fine particulate air pollution and cardiovascular and respiratory mortality in 337 cities in Latin America. *Science of The Total Environment*, 920.

Gračner, T., Marquez-Padilla, F., & Hernandez-Cortes, D. (2022). Changes in Weight-Related Outcomes among Adolescents Following Consumer Price Increases of Taxed Sugar-Sweetened Beverages. *JAMA Pediatr*, 176(2), 150-158.

Grant, M., Brown, C., Caiaffa, W. T., Capon, A., Corburn, J., Coutts, C., & Crespo, C. J. (2017). Cities and health: An evolving global conversation. *Cities & Health*, 1(1), 1-9.

Grantham-McGregor, S. M., Walker, S. P., Chang, S. M., & Powell, C. A. (1997). Effects of early childhood supplementation with and without stimulation on later development in stunted Jamaican children. *Am. J Clin Nutr*, 66, 247-253.

Haan, Monique, & Leuven, E. (2020). Head Start and the Distribution of Long-Term Education and Labor Market Outcomes. *Journal of Labor Economics*, 38(3), 727-765. <https://doi.org/10.1086/706090>.

Handler, Sophie. (2014). *Research & Evaluation Framework for Age-friendly Cities*. UK Urban Ageing Consortium.

Hasdell, R. (2020). *What we know about Universal Basic Income: A cross-synthesis of reviews*. Basic Income Lab.

Heckman, J., & Karapakula, G. (2021). Using a Satisficing Model of Experimenter Decision-Making to Guide Finite-Sample Inference for Compromised Experiments. *The Econometrics Journal*, 24(2), 1-39. <https://doi.org/10.1093/ectj/utab009>.

Heckman, J., Moon, S., Pinto, R., Savelyev, P., & Yavitz, A. (2010). The Rate of Return to the HighScope Perry Preschool Program. *Journal of Public Economics*, 94(1-2), 114-128.

Hernández-F, M., Cantoral, A., & MA, C. (2021). Taxes to Unhealthy Food and Beverages and Oral Health in Mexico: An Observational Study. *Caries Research*, 55(3), 183-192.

Hillman, C. H., Erickson, K. I., & Kramer, A. F. (2008). Be smart, exercise your heart: Exercise effects on brain and cognition. *Nat Rev Neurosci*, 9, 58-65.

Hojman, A., & Boo, F. L. (2022). Public Childcare Benefits Children and Mothers: Evidence from a Nationwide Experiment in a Developing Country. *Journal of Public Economics*, 212, 104686.

Hood, C. M., Gennuso, K. P., Swain, G. R., & Catlin, B. B. (2016). County Health Rankings: Relationships between Determinant Factors and Health Outcomes. *American Journal of Preventive Medicine*, 50(2), 129-135. <https://doi.org/10.1016/j.amepre.2015.08.024>

Horton, R. (2022). Offline: Bill Gates and the fate of WHO. *Lancet*, 399(1853). [https://doi.org/10.1016/S0140-6736\(22\)00874-1pmid:http://www.ncbi.nlm.nih.gov/pubmed/35569450](https://doi.org/10.1016/S0140-6736(22)00874-1pmid:http://www.ncbi.nlm.nih.gov/pubmed/35569450)

Hutton, G., & Varughese, M. (2016). *The Costs of Meeting the 2030 Sustainable Development Goal Targets on Drinking Water, Sanitation, and Hygiene*. Water and Sanitation Program.

Ichikawa, M., Chadbunchachai, W., & Marui, E. (2003). Effect of the helmet act for motorcyclists in Thailand. *Accid Anal Prev*, 35, 183-189. [https://doi.org/10.1016/S0001-4575\(01\)00102-6](https://doi.org/10.1016/S0001-4575(01)00102-6).

IDB. (2020). *Transportation Sector Framework Document*. Interamerican Development Bank.

IDB. (2021a). *Social Protection and Poverty Sector Framework Document*. Interamerican Development Bank.

IDB. (2021b). *Water and Sanitation Sector Framework Document*. Interamerican Development Bank.

IDB. (2022a). *Inclusive cities: Healthy cities for all* (Nora Libertun editor). Interamerican Development Bank.

IDB. (2022b). *Aging in Latin America and the Caribbean: Social protection and quality of life of older persons*. Inter-American Development Bank.

IDB. (2024a). *Early childhood development sector framework document*. The Inter-American Development Bank.

IDB. (2024b). *The Complexities of Inequality in Latin America and the Caribbean*. Inter-American Development Bank. <https://www.iadb.org/en/news/complexities-inequality-latin-america-and-caribbean>

IDB. (2024c). *Efficient Use of Firewood and Alternative Fuels in Indigenous and Rural Communities in Guatemala*. <https://www.iadb.org/en/whats-our-impact/GU-G1004>

Institute of Medicine and National Research Council. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. National Academies Press. <https://doi.org/10.17226/9824>.

ITF. (2019). *ITF Transport Outlook 2019*, OECD Publishing, Paris, https://doi.org/10.1787/transp_outlook-en-2019-en.

Jeong, J., Pitchik, H. O., & Fink, G. (2021). Short-term, medium-term and long-term effects of early parenting interventions in low-and middle-income countries: A systematic review. *BMJ Glob Health*, 6 004067. <https://doi.org/10.1136/bmjgh-2020>

Johnson, E., Reed, H., Stark, G., Villadsen, A., Mujica, F. P., Kypridemos, C., Cookson, R., Nettle, D., Pickett, K., & Johnson, M. (2023). *The Health Case for Basic Income*. Northumbria University, University College London, Erasmus University, University of Liverpool, University of York. <https://ukdataservice.ac.uk/case-study/the-health-case-for-basic-income/>

Kangas, O., Jauhiainen, S., Simanainen, M., & Ylikännö, M. (2019). *The basic income experiment 2017–2018 in Finland Preliminary results*.

Kelly, P., Kahlmeier, S., Götschi, T., Orsini, N., Richards, J., Roberts, N., Scarborough, P., & Foster, C. (2014). Systematic review and meta-analysis of reduction in all-cause mortality from walking and cycling and shape of dose response relationship. *Int. J. Behav. Nutr. Phys. Act*, 11, 132.

Kelly, P., Williamson, C., Niven, A. G., Hunter, R., Mutrie, N., & Richards, J. (s. f.). Walking on sunshine: Scoping review of the evidence for walking and mental health. *Br. J. Sports Med*, 52(12), 800-806.

Kent, J. L., & Thompson, S. (2014). The Three Domains of Urban Planning for Health and Well-being. *Journal of Planning Literature*, 29(3), 239-256. <https://doi.org/10.1177/0885412214520712>

Keon WJ & Pepin L (2009). A healthy, productive Canada : a determinant of health approach. Report of the Senate Subcommittee on Population Health [40th Parliament, 2nd Session, 8th report]. Canada. Senate. Standing Committee on Social Affairs, Science and Technology, Subcommittee on Population Health. <https://publications.gc.ca/site/eng/359901/publication.html>

Kondo, M. C., Mueller, N., Locke, D. H., Roman, L. A., Rojas-Rueda, D., Schinas, L. H., Gascon, M., & Nieuwenhuijsen, M. J. (2020). Health impact assessment of Philadelphia's 2025 tree canopy cover goals. *Lancet Planet Health*, 4, 149-157.

Kopasker, D., Montagna, C., & Bender, K. A. (2018). Economic insecurity: A socioeconomic determinant of mental health. *SSM - Population Health*, 6, 184-194. <https://doi.org/10.1016/j.ssmph.2018.09.006>
Stanford Basic Income Lab (2020). *Health. Online Research Visualization*.

Labib, S. M., Lindley, S., & Huck, J. J. (2020). Spatial dimensions of the influence of urban green-blue spaces on human health: A systematic review. *Environ. Res*, 180.

Lam, T. M., Vaartjes, I., & Grobbee, D. E. (2021). Associations between the built environment and obesity: An umbrella review. *Int J Health Geogr*, 20, 7. <https://doi.org/10.1186/s12942-021-00260-6>

Leopold, L., & Engelhardt, H. (2013). Education and physical health trajectories in old age. Evidence from the Survey of Health, Ageing and Retirement in Europe (SHARE). *Int J Public Health*, 58, 23-31. <https://doi.org/10.1007/s00038-013-0453-6>

Leventhal, T., & Dupéré, V. (2019). Neighborhood Effects on Children's Development in Experimental and Nonexperimental Research. *Annual Review of Developmental Psychology*, 1(1), 149-176. <https://doi.org/10.1146/annurev-devpsych-121318-085221>.

Long, M. W., Gortmaker, S. L., Ward, Z. J., Resch, S. C., Moodie, M. L., Sacks, G., & Swinburn BA, Carter RC, Wang YC. (2015). Cost-effectiveness of a sugar-sweetened beverage excise tax in the U.S. *American Journal of Preventive Medicine*, 49(1), 112-123.

Low Emission Development Strategies Global Partnership. (2016). *Vulnerability to air pollution in Latin America and the Caribbean region*. World Health Organization. https://ledsgp.org/resource/vulnerability-to-air-pollution-in-latin-america-and-the-caribbean-region/?loclang=en_gb.

Lowe, M., Adlakha, D., Sallis, J. F., Salvo, D., Cerin, E., Moudon, A. V., Higgs, C., Hinckson, E., Arundel, J., Boeing, G., Liu, S., Mansour, P., Gebel, K., Puig-Ribera, A., Mishra, P. B., Bozovic, T., Carson, J., Dygrýn, J., Florindo, A. A., ... Giles-Corti, B. (2022). City planning policies to support health and sustainability: An international comparison of policy indicators for 25 cities. *The Lancet Global Health*, 10(6), e882-e894. [https://doi.org/10.1016/S2214-109X\(22\)00069-9](https://doi.org/10.1016/S2214-109X(22)00069-9)

Lund, C., Brooke-Sumner, C., Baingana, F., Baron, E. C., Breuer, E., Chandra, P., Haushofer, J., Herrman, H., Jordans, M., Kieling, C., Medina-Mora, M. E., Morgan, E., Omigbodun, O., Tol, W., Patel, V., & Saxena, S. (2018). Social determinants of mental disorders and the Sustainable Development Goals: A systematic review of reviews. *The Lancet Psychiatry*, 5(4), 357-369. [https://doi.org/10.1016/S2215-0366\(18\)30060-9](https://doi.org/10.1016/S2215-0366(18)30060-9)

Lyu, J., & Burr, J. A. (2016). Socioeconomic status across the life course and cognitive function among older adults: An examination of the latency, pathways, and accumulation hypotheses. *J Aging Health*, 28, 40-67.

MacGuire, F. A. S. (2020). Reducing Health Inequalities in Aging Through Policy Frameworks and Interventions. *Front Public Health*, 8(315). <https://doi.org/10.3389/fpubh.2020.00315>.

Manuel Barron, Maximo Torero,. (2017). Household electrification and indoor air pollution. *Journal of Environmental Economics and Management*, 86, 81-92.

Marmot, M. (2005). Social determinants of health inequalities. *Lancet*, 365(9464), 1099-1104. [https://doi.org/10.1016/S0140-6736\(05\)71146-6](https://doi.org/10.1016/S0140-6736(05)71146-6)

Martinez, S., Sanchez, R., & Yañez-Pagans, P. (2019). Road safety: Challenges and opportunities in Latin America and the Caribbean. *Lat Am Econ Rev*, 28, 17. <https://doi.org/10.1186/s40503-019-0078-0>

Matías, B., & Messina, J. (Eds.). (2020). *The Inequality Crisis: Latin America and the Caribbean at the Crossroads*. The Inter-American Development Bank.

McGowan, V. J., & Bambra, C. (2022). COVID-19 Mortality and Deprivation: Pandemic, Syndemic, and Endemic Health Inequalities. *The Lancet Public Health*, 7(11), 966-975. [https://doi.org/10.1016/S2468-2667\(22\)00223-7](https://doi.org/10.1016/S2468-2667(22)00223-7).

McTarnaghan, S., Martín, C., Srini, T., Amanda Gold, J. C., Suminski, M., & Guzman, Y. (2016, octubre). *Literature Review of Housing in Latin America and the Caribbean Phase I*. Global Housing Research Initiative Urban Institute.

Melo, G. (2023). Structural responses to the obesity epidemic in Latin America: What are the next steps for food and physical activity policies? *The Lancet Regional Health – Americas*, 21.

Mitigation Action Facility. (nd). *Guatemala – Sustainable Cookstoves*. Mitigation Action Facility. <https://mitigation-action.org/projects/guatemala-sustainable-cookstoves/>

Montes, Felipe & Sarmiento, Olga & Zarama, Roberto & Pratt, Michael & Wang, Guijing & Jacoby, Enrique & Schmid, Tom & Ramos, Mauricio & Ruiz, Oscar & Vargas, Olga & Michel, Gabriel & Zieff, Susan & Valdivia, J. & Cavill, Nick & Kahlmeier, Sonja. (2011). Do Health Benefits Outweigh the Costs of Mass Recreational Programs? An Economic Analysis of Four Ciclovía Programs. *Journal of urban health : bulletin of the New York Academy of Medicine*. 89. 153-70. 10.1007/s11524-011-9628-8.

Mode, N. A., Evans, M. K., & Zonderman, A. B. (2016). Race, neighborhood economic status, income inequality and mortality. *PLoS ONE*, 11(5), 0154535.

Mueller, N., Rojas-Rueda, D., Salmon, M., Martinez, D., Ambros, A., Brand, C., Nazelle, A., Dons, E., Gaupp-Berghausen, M., Gerike, R., Götschi, T., Iacorossi, F., Panis, L. I., Kahlmeier, S., Raser, E., & Nieuwenhuijsen, M. (2018). PASTA consortium Health impact assessment of cycling network expansions in European cities. *Prev. Med*, S0091-7435(17, 30497-30498.

Medellin, N. (2020). *Cost simulation tool for long term care systems*. Inter-American Development Bank.

Narushima, M., Liu, J., & Diestelkamp, N. (2018). Lifelong learning in active ageing discourse: Its conserving effect on wellbeing, health and vulnerability. *Epub 2016 Nov 21*, 38(4), 651-675. <https://doi.org/10.1017/S0144686X16001136>.

Nathan, A., Villanueva, K., & Rozek, J. (2018). The Role of the Built Environment on Health Across the Life Course: A Call for CollaborACTION. *American Journal of Health Promotion*, 32(6), 1460-1468. <https://doi.org/10.1177/0890117118779463a>

National Academies of Sciences, Engineering, and Medicine. (2020). *Social isolation and loneliness in older adults: Opportunities for the health care system*. The National Academies Press. <https://www.who.int/news/item/15-11-2023-who-launches-commission-to-foster-social-connection>

NCD Alliance (2020). *New report exposes growing influence of the alcohol industry in the Latin America and Caribbean region*. <https://ncdalliance.org/news-events/news/new-report-exposes-growing-influence-of-the-alcohol-industry-in-the-latin-america-and-caribbean-region>

Nieuwenhuijsen, M. J. (2021). New urban models for more sustainable, liveable and healthier cities post covid19 ; reducing air pollution, noise and heat island effects and increasing green space and physical activity. *Environment International*, 157, 106850. <https://doi.org/10.1016/j.envint.106850>.

Nieuwenhuijsen, M. J., Khreis, H., Triguero-Mas, M., Gascon, M., & Dadvand, P. (2017). Fifty shades of green: Pathway to healthy urban living. *Epidemiology*, 28, 63-71.

Nieuwenhuijsen, M. J., Khreis, H., Verlinghieri, E., Mueller, N., & Rojas-Rueda, D. (2017). Participatory quantitative health impact assessment of urban and transport planning in cities: A review and research needs. *Environ. Int*, S0160-4120(17), 30128-30129.

Nordbø, E. C. A., Nordh, H., Raanaas, R. K., & Aamodt, G. (2020). Promoting activity participation and well-being among children and adolescents: A systematic review of neighborhood built-environment determinants. *JBI Evid Synth*, 18(3), 370.

Ortenzi, F., Marten, R., Valentine, N. B., Kwamie, A., & Rasanathan, K. (2022). Whole of government and whole of society approaches: Call for further research to improve population health and health equity. *BMJ Global Health*, 7(7), e009972. <https://doi.org/10.1136/bmjgh-2022-009972>

Ortiz, I., Behrendt, C., Acuña-Ulate, A., & Anh, N. Q. (2018). Universal Basic Income Proposals in Light of ILO Standards: Key Issues and Global Costing. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3208737>.

Otero, S., & Rau, T. (2017). The effects of drinking and driving laws on car crashes, injuries, and deaths: Evidence from Chile. *Accident Analysis and Prevention*, 262-274.

Owusu-Addo, E., Renzaho, A. M. N., & Smith, B. J. (2018). The impact of cash transfers on social determinants of health and health inequalities in sub-Saharan Africa: A systematic review. *Health Policy Plan*, 33(5), 675-696. <https://doi.org/10.1093/heapol/czy020>.

Pacala, J. T., Boulton, C., Bland, C., & O'Brien, J. (1995). Aging Game Improves Medical Students' Attitudes Toward Caring for Elders. *Gerontology & Geriatrics Education*, 15(4), 45-57. https://doi.org/10.1300/J021v15n04_05

Pacala, J. T., Boulton, C., & Hepburn, K. (2006). Ten Years' Experience Conducting the Aging Game Workshop: Was It Worth It? *Journal of the American Geriatrics Society*, 54(1), 144-149. <https://doi.org/10.1111/j.1532-5415.2005.00531.x>

PAHO. (nd). *About Health in All Policies*. Panamerican Health Organization. https://www3.paho.org/hq/index.php?option=com_content&view=article&id=9360:2014-about-health-all-policies&Itemid=40177&lang=en

PAHO. (2019). *Status of Road Safety in the Region of the Americas*. Panamerican Health Organization.

PAHO. (2020). *Regional Status Report on Alcohol and Health 2020*. Pan American Health Organization.

PAHO. (2021). *Latin America and the Caribbean Regional Overview of Food Security and Nutrition 2021: Statistics and Trends*. Panamerican Health Organization. <https://iris.paho.org/handle/10665.2/55213>

PAHO. (2022). Sugar-Sweetened Beverage Tax Indicators in Latin America and the Caribbean. Panamerican Health Organization. <https://iris.paho.org/handle/10665.2/56103>

PAHO. (2023a). *Report on Tobacco Control for the Region of the Americas 2022* (Revised). Pan American Health Organization. <https://doi.org/10.37774/9789275127032>.

PAHO. (2023b). *The Role of Digital Technologies in Aging and Health*. Pan American Health Organization. <https://iris.paho.org/handle/10665.2/57344>

Paraje, G. R., Jha, P., Savedoff, W., & Fuchs, A. (2023). Taxation of tobacco, alcohol, and sugar-sweetened beverages: Reviewing the evidence and dispelling the myths. *BMJ Global Health*, 8(Suppl 8), e011866. <https://doi.org/10.1136/bmjgh-2023-011866>

Patel, J. A., Nielsen, F. B. H., Badiani, A. A., Assi, S., Unadkat, V. A., Patel, B., Ravindrane, R., & Wardle, H. (2020). Poverty, inequality and COVID-19: The forgotten vulnerable. *Public Health*, 183, 110-111.

Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., Chisholm, D., Collins, P. Y., Cooper, J. L., Eaton, J., Herrman, H., Herzallah, M. M., Huang, Y., Jordans, M. J. D., Kleinman, A., Medina-Mora, M. E., Morgan, E., Niaz, U., Omigbodun, O., & Unützer, J. (2018). The Lancet Commission on global mental health and sustainable development. *The Lancet*, 392(10157), 1553-1598. [https://doi.org/10.1016/S0140-6736\(18\)31612-X](https://doi.org/10.1016/S0140-6736(18)31612-X)

Paul Gertler, James J. Heckman, Rodrigo Pinto, Susan M. Chang, Sally Grantham-McGregor, Christel Vermeersch, Susan Walker, Amika Wright. (2021). Effect of the Jamaica Early Childhood Stimulation Intervention on Labor Market Outcomes at Age 31. En *NBER: Vol. Working Paper* (Número 29292).

Pega, F., Liu, S. Y., Walter, S., & Lhachimi, S. K. (2015). Unconditional cash transfers for assistance in humanitarian disasters: Effect on use of health services and health outcomes in low- and middle-income countries. *Cochrane Database of Systematic Reviews*, 9;CD0112479.

Petimar, J., Gibson, L. A., Yan, J., Bleich, S. N., Mitra, N., Trego, M. L., Lawman, H. G., & Roberto, C. A. (2022). Sustained Impact of the Philadelphia Beverage Tax on Beverage Prices and Sales over 2 Years. *Am J Prev Med*, 62(6), 921-929.

Pichon-Riviere, A., Alcaraz, A., & Palacios, A. (2020). The health and economic burden of smoking in 12 Latin American countries and the potential effect of increasing tobacco taxes: An economic modelling study. *Lancet Glob Health*, 8:e1282-94, 2214-109 20 30311-9. [https://doi.org/10.1016/S2214-109X\(20\)30311-9](https://doi.org/10.1016/S2214-109X(20)30311-9)

Pichon-Riviere, A., Bardach, A., & Rodríguez Cairoli, F. (2023). Health, economic and social burden of tobacco in Latin America and the expected gains of fully implementing taxes, plain packaging, advertising bans and smoke-free environments control measures: A modelling study. *Tobacco Control*. <https://doi.org/10.1136/tc-2022-057618>

Prado, E. L., Larson, L. M., Cox, K., Bettencourt, K., Kubes, J. N., & Shankar, A. H. (2019). Do effects of early life interventions on linear growth correspond to effects on neurobehavioural development? A systematic review and meta-analysis. *Lancet Glob Health*, 7 1398-413. [https://doi.org/10.1016/S2214-109X\(19\)30361-4](https://doi.org/10.1016/S2214-109X(19)30361-4)

Preuß, M., Nieuwenhuijsen, M., Marquez, S., Cirach, M., Dadvand, P., Triguero-Mas, M., Gidlow, C., Grazuleviciene, R., Kruize, H., & Zijlema, W. (2019). Low childhood nature exposure is associated with worse mental health in adulthood. *Int. J. Environ Res. Public Health*, 16(10), 1809.

Prüss-Ustün, A., Wolf, J., Bartram, J., Clasen, T., Cumming, O., Freeman, M. C., Gordon, B., Hunter, P. R., Medlicott, K., & Johnston, R. (2019). Burden of disease from inadequate water, sanitation and hygiene for selected adverse health outcomes: An updated analysis with a focus on low- and middle-income countries. *International Journal of Hygiene and Environmental Health*, 222(ue 5), 765-777.

Renalds, A., Smith, T. H., & Hale, P. J. (2010). A systematic review of built environment and health. *Fam Community Health*, 33(1), 68.

Ricci, M. (2015). Bike sharing: A review of evidence on impacts and processes of implementation and operation. *Research in Transportation Business & Management*, 15, 28-38.

Richterman, A., Millien, C., Bair, E. F., Jerome, G., Suffrin, J. C. D., Behrman, T., JR, & H. (2023). The effects of cash transfers on adult and child mortality in low- and middle-income countries. *Nature*, 618(7965), 575-582. <https://doi.org/10.1038/s41586-023-06116-2>.

Rogers, N. T., Conway, D. I., Mytton, O., Roberts, C. H., Rutter, H., Sherriff, A., White, M., & Adams, J. (2023). Estimated Impact of the UK Soft Drinks Industry Levy on Childhood Hospital Admissions for Carious Tooth Extractions: Interrupted Time Series Analysis. *BMJ Nutrition, Prevention & Health*, 6:e000714. <https://doi.org/10.1136/bmjnph-2023-000714>.

Rogers, N. T., Cummins, S., Jones, C. P., Mytton, O., Rayner, M., Rutter, H., White, M., & Adams, J. (2023). Estimated Changes in Free Sugar Consumption One Year after the UK Soft Drinks Industry Levy Came into Force. In *Controlled Interrupted Time Series Analysis of the National Diet and Nutrition Survey (2011—2019)*. medRxiv Preprint 6 (p. 00714). <https://doi.org/10.1101/2023.06.26.23291902>.

Rossin-Slater, Wüst 2020; Rossin-Slater, M., & Wüst, M. (2016). What Is the Added Value of Preschool? Long-Term Impacts and Interactions with a Health Intervention. En *SSRN Scholarly Paper*. <https://doi.org/10.2139/ssrn.2849739>.

Ruckert, A., Huynh, C., & Labonté, R. (2018). Reducing health inequities: Is universal basic income the way forward? *Journal of Public Health*, 40(1), 3-7. <https://doi.org/10.1093/pubmed/idx006>

Saelens, B. E., Rowland, M., Qu, P., Walkinshaw, L., Oddo, V., Knox, M., Chan, N. L., & Jones-Smith, J. C. (2021). *Twelve Month Report: Store Audits & Child Cohort—The Evaluation of Seattle's Sweetened Beverage Tax*. Public Health-Seattle and King County.

Sarmiento O.L. Díaz del Castillo A., Triana C.A, Acevedo M.J., Gonzalez S.A., Pratt M. (2017). Reclaiming the streets for people: Insights from ciclovías recreativas in Latin America. *Prev Med*, 103, 34-40.

Schweinhart, L., Montie, J., Xiang, Z., Barnett, S., Belfield, C., & Nores, M. (2005). *Lifetime Effects: The High/Scope Perry Preschool Study through Age 40 | Research Connections*. High/Scope Press. <https://www.researchconnections.org/childcare/resources/7622>.

Smith-Sivertsen, T., Díaz, E., Pope, D., Lie, R. T., Díaz, A., McCracken, J., Bakke, P., Arana, B., Smith, K. R., & Bruce, N. (2009). Effect of reducing indoor air pollution on women's respiratory symptoms and lung function: The RESPIRE Randomized Trial, Guatemala. *Am J Epidemiol*.

Solar, O., & Irwin, A. (2010). *A conceptual framework for action on the social determinants of health. Social Determinants of Health*. World Health Organization.

Stampini, M., Ibararán, P., Rivas, C., & Robles, M. (2021). *Adaptive, but not by design: cash transfers in Latin America and the Caribbean before, during and after the COVID-19 Pandemic*. Inter-American Development Bank

Stanford Basic Income Lab. (2020). *Health. Online Research Visualization*.

Stevenson, M., Thompson, J., Sá, T. H., Ewing, R., Mohan, D., McClure, R., & Wallace, M. (2016). Land use, transport, and population health: Estimating the health benefits of compact cities. *The Lancet*, 368(1062), 2925-2935.

The Task Force on Fiscal Policy for Health. (2019, April). *Employing Effective Excise Taxes on Tobacco, Alcohol, and Sugary Beverages*.

Thomson, R. M., Igelström, E., & AK, P. (2022). How do income changes impact on mental health and wellbeing for working-age adults? A systematic review and meta-analysis. *Lancet Public Health*, 7, 515-528.

Tobacco Atlas. (2018, November). *Tobacco use in Latin America*.

U.N.-Habitat, & Organization, W. H. (2020). *Integrating health in urban and territorial planning: A sourcebook*. <https://iris.who.int/handle/10665/331678>.

United Nations General Assembly. (2020). *Enhancing Global Road Safety*.

Valson, J. S., & Kutty, V. R. (2018). Gender Differences in the Relationship between Built Environment and Non-Communicable Diseases: A Systematic Review. *Journal of Public Health Research*, 7(1). <https://doi.org/10.4081/jphr.2018.1239>

Varkey, S., & Kandpal, E. (2022). Neelsen S Why addressing inequality must be central to pandemic preparedness. *BMJ Global Health*, 7, 010453.

Vaz, C. T., Coelho, D. M., Silva, U. M., Souza Andrade, A. C., López, F. G., Dueñas, O. L. S., Lima Friche, A. A., Diez-Roux, A. V., & Caiaffa, W. T. (2023). Social environment characteristics are related to self-rated health in four Latin America countries: Evidence from the SALURBAL Project. *Health&Place*, 83. <https://doi.org/10.1016/j.healthplace.2023.103110>.

Wagenaar, A. C., Salois, M. J., & Komro, K. A. (2009). Effects of beverage alcohol price and tax levels on drinking: A meta-analysis of 1003 estimates from 112 studies. *Addiction*, 104(179-190).

Wagg, E., Blyth, F. M., Cumming, R. G., & Khalatbari-Soltani, S. (2021). Socioeconomic position and healthy ageing: A systematic review of cross-sectional and longitudinal studies. *Ageing Res Rev*, 69(101365). <https://doi.org/10.1016/j.arr.2021.101365>.

Walker, S. P., Chang, S. M., Wright, A. S., Pinto, R., Heckman, J. J., & Grantham-McGregor, S. M. (2022). Cognitive, psychosocial, and behaviour gains at age 31 years from the Jamaica early childhood stimulation trial. *J Child Psychol Psychiatr*, 63, 626-635. <https://doi.org/10.1111/jcpp.13499>

Wang, X., Rodríguez, D. A., Sarmiento, O. L., & Guaje, O. (2019). Commute patterns and depression: Evidence from eleven Latin American cities. *Journal of Transport & Health*, Volume, 14, 2214-1405.

Werna, E., Harpham, T., Blue, I., & Goldstein, G. (1999). From Healthy City Projects to Healthy Cities. *Environment and Urbanization*, 11(1), 27-40. <https://doi.org/10.1177/095624789901100109>.

White, M. P., Alcock, I., & Grellier, J. (2019). Spending at least 120 minutes a week in nature is associated with good health and wellbeing. *Sci. Rep*, 9, 7730.

WHO. (2015a). *World report on ageing and health*. World Health Organization. <https://iris.who.int/handle/10665/186463>

WHO. (2015b). *Measuring the age-friendliness of cities: A guide to using core indicators*. World Health Organization. <https://iris.who.int/handle/10665/203830>

WHO. (2018). *WHO Housing and health guidelines*. World Health Organization.

WHO. (2020). *Alcohol Data by country*. <https://apps.who.int/gho/data/view.main.1800>

WHO. (2021). *Global report on ageism*. World Health Organization.

WHO. (2023). *National programmes for age-friendly cities and communities: A guide*. World Health Organization.

Wolf, J., Hunter, P. R., Freeman, M. C., Cumming, O., Clasen, T., Bartram, J., Higgins, J. P. T., Johnston, R., Medlicott, K., Boisson, S., & Prüss-Ustün, A. (2018). *Impact of drinking water, sanitation and handwashing with soap on childhood diarrhoeal disease: Updated meta-analysis and meta-regression*. Tropical Medicine and International Health.

World Bank. (2016). *The Cost of Air Pollution: Strengthening the Economic Case for Action*.

World Bank. (2020). *The Global Health Cost of Ambient PM2.5 Air Pollution*.

Wright, A., Smith, K. E., & Hellowell, M. (2017). Policy Lessons from Health Taxes: A Systematic Review of Empirical Studies. *BMC Public Health*, 17(1), 1-14. <https://doi.org/10.1186/S12889-017-4497-Z/TABLES/2>.

Wu, Y.-T., Daskalopoulou, C., Muniz Terrera, G., Sanchez Niubo, A., Rodríguez-Artalejo, F., Ayuso-Mateos, J. L., Bobak, M., Caballero, F. F., De La Fuente, J., De La Torre-Luque, A., García-Esquinas, E., Haro, J. M., Koskinen, S., Koupil, I., Leonardi, M., Pajak, A., Panagiotakos, D., Stefler, D., Tobias-Adamczyk, B., ... Prina, A. M. (2020). Education and wealth inequalities in healthy ageing in eight harmonised cohorts in the ATHLOS consortium: A population-based study. *The Lancet Public Health*, 5(7), e386-e394. [https://doi.org/10.1016/S2468-2667\(20\)30077-3](https://doi.org/10.1016/S2468-2667(20)30077-3)

Zaneva, M., Guzman-Holst, C., & A, R. (2022). The impact of monetary poverty alleviation programs on children's and adolescents' mental health: A systematic review and meta-analysis across low-, middle-, and high-income countries. *J Adolesc Health*, 71, 147-156.

Zhang, L., Ssewanyana, D., Martin, M. C., Lye, S., Moran, G., Abubakar, A., Marfo, K., Marangu, J., Proulx, K., & Malti, T. (2021). Supporting Child Development Through Parenting Interventions in Low- to Middle-Income Countries: An Updated Systematic Review. *Front Public Health*, 9(671988). <https://doi.org/10.3389/fpubh.2021.671988>.

Zimmerman, A., Garman, E., Avendano-Pabon, M., Araya, R., Evans-Lacko, S., McDaid, D., Park, A. L., Hessel, P., Diaz, Y., Matijasevich, A., Ziebold, C., Bauer, A., Paula, C. S., & Lund, C. (2021). The impact of cash transfers on mental health in children and young people in low-income and middle-income countries: A systematic review and meta-analysis. *BMJ Glob Health*, 6(4), 004661.

