

ESSAY

Advancing global health and the sustainable development goals through transdisciplinary research and equitable publication practices

Craig R. Cohen^{1,2,*}, Andres G. Lescano³, Fernando O. Mardones⁴, Purnima Menon⁵, Harsha Thirumurthy⁶, and Sarah Ssali⁷

Keywords: Global health, Sustainable development goals, No poverty, No hunger, Gender equity, Good health and well-being, Planetary health, Academic publishing, Health equity

Just eight years from now, in 2030, the world will once again review our progress toward the United Nations Sustainable Development Goals (SDGs), a bold set of 17 interconnected goals with 169 targets, agreed upon by the 191 United Nations (UN) members, centered around creating a more equitable world for all. The SDGs were originally published in 2015 on the seventieth anniversary of the UN to set out a “supremely ambitious and transformational vision . . . a world free of poverty, hunger, disease and want, where all life can thrive” [1]. The SDGs were developed with a full recognition that humanity’s needs are deeply connected and not siloed. Despite this recognition, we continue to approach humanity’s needs in ways that belie the interconnectedness of those needs; we continue to work in ways that do not fully acknowledge that basic development needs such as housing, water, food, gender equality, food insecurity, poverty alleviation, and the environment are interconnected. We believe this is unacceptable because it fragments the discourse around the fullness of what humanity itself needs to thrive.

The world of research is just as fragmented as the world of programs and policies around the SDGs. Development

aid and government investments in sectoral programs are normally examined for their impacts on narrow outcomes. For example, few programs in nonhealth sectors are assessed for their influence on human health outcomes. While annual global development aid reached \$161.2 billion in 2020 [2], economic and agricultural development programs rarely evaluate their health impacts [3, 4]. More importantly, most poverty alleviation and food security programs are not developed with improving health or health equity as a key objective, and as a result, improvements in health are not optimized with traditional development approaches. Additional research examining the linkage between poverty alleviation, improved food security, gender equality, planetary health, and human health could further encourage large global health and development actors to invest in more interdisciplinary approaches.

Systemic racism as well as ethnic, gender, and other forms of discrimination negatively affect progress toward achieving the SDGs. Minoritized racial and ethnic groups are generally further behind advantaged racial and ethnic groups in poverty, economic growth, and access to clean water and food, all of which adversely affect health and well-being. Those who live in poverty typically have less access to food, less access to clean water and sanitation, and more exposure to pollution than those who have a higher income [5]. Physical and psychological health disparities are further exacerbated by racial disparities related to environmental injustice and climate change [6]. Despite a call by several UN human rights groups, the SDGs are silent on the eradication of systemic racism and racial, ethnic, and many other forms of discrimination, which constitute global barriers to human development and the fulfillment of human rights throughout the life span.

Prior to the COVID-19 pandemic, many countries around the world had made substantial progress toward ending poverty in all its forms (SDG 1). While 36% of the world’s population lived in extreme poverty in 1990, by 2015 this had fallen to 10%. Due to the COVID-19

¹ Department of Obstetrics, Gynecology & Reproductive Sciences, University of California, San Francisco, CA, USA

² University of California Global Health Institute, San Francisco, CA, USA

³ Emerge, Emerging Diseases and Climate Change Research Unit, School of Public Health and Administration, Universidad Peruana Cayetano Heredia, San Martín de Porres, Lima, Peru

⁴ Escuela de Medicina Veterinaria, Facultad de Agronomía e Ingeniería Forestal, Facultad de Ciencias Biológicas y Facultad de Medicina, Pontificia Universidad Católica de Chile, Santiago, Chile

⁵ International Food Policy Research Institute, New Delhi, India

⁶ Division of Health Policy, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA

⁷ School of Women and Gender Studies, Makerere University, Kampala, Uganda

* Corresponding author:
Email: craig.cohen@ucsf.edu

pandemic, however, it is estimated that an additional half a billion people have been pushed or pushed further into poverty [7]. The effects of infectious diseases like COVID-19 on economic outcomes serve as yet another illustration of the strong positive correlation established between health and wealth over decades of economics research. Moreover, a vibrant literature in economics has demonstrated a strong bidirectional relationship between health and economic outcomes in both low- and high-income countries [8]. This research has demonstrated that there are large returns to investing in health and that programs that protect or improve economic outcomes—such as social protection programs—result in significant health improvements as well. Moreover, in the field of economics, the past two decades have witnessed a revolution in scientific methods for learning how to end poverty and improve well-being in low- and middle-income countries. Randomized trials of interventions and policies have become far more common and have opened new possibilities for understanding how to achieve SDG 1, and also with important impacts on SDG 3 (“Good health and well-being”) [9]. However, most of the economic research on poverty alleviation and health in low- and middle-income countries typically appears in journals that are not widely read by health scientists or by stakeholders in the countries where the research takes place. Through the section on SDG 1, *Advances in Global Health* aims to provide new opportunities for dissemination of research on the linkages between poverty and health.

Food insecurity and poor diets (SDG 2) compromise nutrition and health outcomes in profound ways. Global and national models suggest that malnutrition and poor diets are the leading contributors to the burden of disease around the world [10]. These impacts operate through multiple pathways. For instance, maternal and child undernutrition contribute to almost half of all child deaths each year in the developing world, and 11% of the global burden of disease, including noncommunicable disease, is linked to poor diets [11]. These poor health outcomes, in turn, can affect other SDGs through increased health expenditures, loss of wages when people are too sick to work, or care burdens that often fall disproportionately on women. The connections between food insecurity, diets, nutrition, and health are strong, mutually reinforcing, and rooted in social and economic inequities. Often, the intergenerational transmission of food insecurity and poor nutrition prevents families and communities from escaping these vicious cycles. And yet too much research on food security and nutrition is out of the view of those working on achieving health goals, because it sits in literatures in agriculture, food policy, nutrition, and economics, and lacks a transdisciplinary and trans-SDG emphasis.

Gender issues and global health challenges are diverse, emanating out of a complex global context, including a multiplicity of social and cultural contexts. SDG 5 is committed to gender equality, with several targets geared toward ending discrimination against women and improving their opportunities, especially in economics, leadership, and reproductive health. Gender equality is

important to advancing global health for several reasons [12, 13]. Without attention to gender equality, females will continue to suffer from reproductive health challenges such as high rates of teenage pregnancies, infertility, and maternal mortality and increased risk of sexually transmitted infections including HIV. Beyond reproductive health, gender matters in the field of gender-based violence, access to health-care services, gender-disaggregated data, and much more [14–16]. These, in turn, invite us to interrogate the gender-biased norms and gender responsiveness of health policies, financing, and the entire political economy. Engendered by different crises and challenges, these matters play out differently in unique cultural and social environments.

Since the 1950s and 1960s, humans have been transforming and disrupting most of our planet’s natural systems at a much-accelerated pace, from the deep oceans to the upper atmosphere, causing loss of biodiversity, over-exploitation of fisheries, rising carbon dioxide in the atmosphere, acidification of oceans, and loss of tropical forests. Those disruptions interact with each other in complex ways to alter the fundamental conditions for human health and well-being and, ultimately, affect nearly every dimension of human health [17]. Planetary health focuses on understanding and quantifying the human health impacts of these global environmental disruptions and on developing solutions that will allow humanity and the natural systems we depend on to thrive now and in the future [18]. Our vision is to encourage the preservation and sustainability of natural systems for the benefit of human health (SDG 3), aligned with SDGs 13 (Climate Action), 14 (Life below Water), and 15 (Life on Land) through the study and characterization of the inextricably linked dependencies between human health and the health of natural systems.

Inequities in the representation of scientists from low- and middle-income countries as well as minority groups in most countries has plagued academic research. For example, in a systematic review of health research in sub-Saharan Africa between 2014 and 2016, 14% of papers had no local coauthors (i.e., from the country where the research took place), and representation of local coauthors as first author was also low (23%) when the research involved researchers from the United States, Canada, or Europe [19]. This is consistent with extensive global health literature [20, 21]. Even higher rates of non-representation of local coauthors are reported in economics research that takes place in low- and middle-income countries. A recent review discovered that only 23% of first authors were from the country of the study’s focus [22, 23]. Research funding and publication fees contribute to such inequities and are some of the barriers that need to be addressed to improve equity in the recognition of research. We believe that supporting the SDGs cannot be separated from addressing these significant inequities in research dissemination.

Advances in Global Health is a peer-reviewed, open-access research journal that is committed to decolonizing and democratizing global health. This entails purposefully giving prominence to knowledge and knowledge

Structural and social determinants of health including racism and other forms of discrimination, colonialism, etc.	Ending poverty in all its forms (SDG 1)
	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture (SDG 2)
	Ensure healthy lives and promote well-being for all at all ages (SDG 3)
	Achieve gender equality and empower all women and girls (SDG 5)
	Planetary health: mitigating the human health impacts of human-caused disruptions to earth's natural systems (SDG 13 [climate action], 14 [life below water], and 15 [life on land])

Figure 1. Journal sections aligned with Sustainable Development Goals (SDGs) and advancement of equity as a cross-cutting theme.

production from low- and middle-income countries as well as racial and ethnic minority communities within all countries. In so doing, *Advances in Global Health* is committed to the following: (1) having an editorial board that is representative of relevant disciplines and inclusive of scholars from low- and middle-income countries; (2) publishing knowledge from low- and middle-income countries; (3) focusing on issues that are pertinent to low- and middle-income countries; and (4) securing representation of lead authors from low- and middle-income countries. The journal is dedicated to transdisciplinarity and inclusivity; seeks to fully engage researchers from low- and middle-income countries in all aspects of the journal; and specifically encourages contributions led by authors situated in these regions. Furthermore, we have chosen to use an open-access format to ensure that the journal content is freely available to researchers, policy makers, and the general community free of charge. For at least through the end of 2023, publication is free of charge; in subsequent years, the publication charge will be reduced or free for authors from low- and middle-income countries.

Thematically, *Advances in Global Health* is focused on advancing health equity throughout the world by publishing research aligned with the SDGs. *Advances in Global Health* centers health as its focus and promotes an interdisciplinary approach to studying the bidirectional relationship between health outcomes and other key sectors—for example, ending poverty and promoting food security, gender equality, and planetary health. These sections emphasize individual disciplinary approaches to the SDGs as outlined in each section's aims and scope, forming the core areas of research inquiry and editorial activity of the journal (Figure 1). However, the journal specifically welcomes and encourages research that is interdisciplinary or transdisciplinary in nature and that cuts across multiple SDGs, to avoid research fragmentation and generate a commonplace for integrative science. Finally, as an underlying theme of the journal connected with each of the sections, we will promote scholarly activity that addresses racism and other forms of discrimination, including the rights of Indigenous people.

In summary, the Editorial Board, UC Press, and the UC Global Health Institute are firmly committed to having

Advances in Global Health be a leading academic journal to share cutting-edge transdisciplinary research and commentaries aiming at improving health equity worldwide. *Advances'* editorial policies will actively address research publishing inequities in low- and middle-income countries to effectively promote free sharing of knowledge around the globe.

Funding

AGL is sponsored by Emerge, the Emerging Diseases Epidemiology Research Training grant D43 TW007393 awarded by the Fogarty International Center of the US National Institutes of Health.

Competing interests

The authors declare that they have no competing interests.

References

1. Transforming our world: the 2030 Agenda for Sustainable Development [Internet]. The General Assembly; 2015 [cited 2022 Aug 6]. Available from: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.
2. COVID-19 spending helped to lift foreign aid to an all-time high in 2020 but more effort needed [Internet]. OECD; 2020 [cited 2022 Aug 6]. Available from: <https://www.oecd.org/newsroom/covid-19-spending-helped-to-lift-foreign-aid-to-an-all-time-high-in-2020-but-more-effort-needed.htm>.
3. Food and Agriculture Organization. The state of food insecurity in the world—the multiple dimensions of food security. Rome (Italy): Food and Agriculture Organization of the United Nations; 2013.
4. Adu MO, Yawson DO, Armah FA, Abano EE, Quansah R. Systematic review of the effects of agricultural interventions on food security in northern Ghana. *PLoS One*. 2018;13(9):e0203605.
5. Blakely T, Hales S, Kieft C, Wilson N, Woodward A. The global distribution of risk factors by poverty level. *Bull World Health Organ*. 2005;83(2):118-26.
6. Beyond the Human Rights Rhetoric on “Leaving No One Behind”: Integrating the elimination of systemic

- racism, and racial and ethnic discrimination, into the implementation of the SDGs [Internet]. 2020 Sep [cited 2022 Aug 6]. Available from: <https://www.spssi.org/index.cfm?fuseaction=document.viewdocument&ID=3F28EB86AE4CA3BB2EE025BE0093BF048C8F7052AE83D097C0BECCF091EC4D6C8A419D9A5BFC2C3737450814D3839CB6>.
7. More than half a billion people pushed or pushed further into extreme poverty due to health care costs [Internet]. 2021 Dec [cited 2022 Aug 6]. Available from: <https://www.who.int/news/item/12-12-2021-more-than-half-a-billion-people-pushed-or-pushed-further-into-extreme-poverty-due-to-health-care-costs>.
 8. Strauss J, Thomas D. Health, nutrition, and economic development. *J Econ Lit*. 1998;36(2):766-817.
 9. Duflo E. Field experiments and the practice of policy. *Am Econ Rev*. 2020;110(7):1952-73.
 10. Malnutrition [Internet]. 2021 Jan [cited 2022 Aug 6]. Available from: <https://www.who.int/news-room/fact-sheets/detail/malnutrition>.
 11. Gödecke T, Stein AJ, Qaim M. The global burden of chronic and hidden hunger: trends and determinants. *Glob Food Sec*. 2018;17:21-9.
 12. The link between climate change and sexual and reproductive health and rights [Internet]. 2021 Jan [cited 2022 Aug 6]. Available from: <https://womendeliver.org/wp-content/uploads/2021/02/Climate-Change-Report.pdf>.
 13. MacPherson EE, Richards E, Namakhoma I, Theobald S. Gender equity and sexual and reproductive health in Eastern and Southern Africa: a critical overview of the literature. *Glob Health Action*. 2014;7(1):237-17.
 14. Grose RG, Chen JS, Roof KA, Rachel S, Yount KM. Sexual and reproductive health outcomes of violence against women and girls in lower-income countries: a review of reviews. *J Sex Res*. 2021;58(1):1-20.
 15. Gavurova B, Ivankova V, Rigelsky M, Suler P. Gender health inequalities and economic productivity in OECD countries. *Econ Res-Ekon Istraz*. 2021;34(1):2853-72.
 16. Ssali S. Gender, economic precarity and Uganda government's COVID-19 response. *AJGD* [Internet]. 2020 Oct 6 [cited 2022 Aug 1];9(11):287-308. Available from: <https://journals.ukzn.ac.za/index.php/jgd/article/view/1759>.
 17. Myers SS. Planetary health: protecting human health on a rapidly changing planet. *The Lancet*. 2017;390(10114):2860-8.
 18. Whitmee S, Haines A, Beyrer C, Boltz F, Capon AG, de Souza Dias BF, et al. Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation—Lancet Commission on planetary health. *The Lancet*. 2015;386:1973-2028. doi:10.1016/S0140-6736(15)60901-1.
 19. Hedt-Gauthier BL, Jeufack HM, Neufeld NH, Alem A, Sauer S, Odhiambo J, et al. Stuck in the middle: a systematic review of authorship in collaborative health research in Africa, 2014–2016. *BMJ Glob Health*. 2019;4(5):e001853.
 20. Mbaye R, Gebeyehu R, Hossmann S, Mbarga N, Bih-Neh E, Eteki L, et al. Who is telling the story? A systematic review of authorship for infectious disease research conducted in Africa, 1980–2016. *BMJ Glob Health*. 2019;4(5):e001855.
 21. Rees CA, Ali M, Kisenge R, Ideh RC, Sirna SJ, Britto CD, et al. Where there is no local author: a network bibliometric analysis of authorship parasitism among research conducted in sub-Saharan Africa. *BMJ Glob Health*. 2021;6(10):e006982.
 22. Greenspon J, Rodrik D. A note on the global distribution of authorship in economics journals [Internet]. Cambridge (MA): National Bureau of Economic Research; p. w29435. Report No.: w29435. 2021 Oct [cited 2022 Jul 27]. Available from: <http://www.nber.org/papers/w29435.pdf>.
 23. Chelwa G. Does economics have an 'Africa problem'? *Econ Soc*. 2021;50(1):78-99.