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Bioethics Recommendations to Increase Culturally Informed Global Health Survey Research: A Framework for Centering Community Engagement

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ABSTRACT

Global health projects—a source of inspiration and collaboration for applied human biology—benefit scholars, governments, NGOs, and aid organizations. While such research is intended to improve population health, direct benefits to individuals and communities are often excluded from published works and/or not considered in study designs and framing. This exclusion is increasingly recognized as a colonial legacy that hinders global health equity, particularly for Indigenous and other marginalized populations. Collaboration and community engagement are avenues for addressing these injustices, but they require planning, intention, and resources. Drawing on our collective experience and ongoing dialogues about community engagement in human biology, we propose six recommendations to increase equity in global health research. These include: (1) Incorporating trusted local specialists and stakeholders at all project levels; (2) disseminating health information to participants in strengths-based and culturally meaningful ways and contributing to solutions wherever possible; (3) investing in local healthcare, research, and infrastructure; (4) making study results/data available to stakeholders; (5) working within data frameworks that respect community sovereignty; and, (6) applying culturally informed bioethics frameworks. Our discussion highlights persistent needs to address community rights and benefits and to dismantle colonial legacies within global health and human biology while recognizing structural barriers to implementing these needed changes, particularly within the context of global health projects wherein human biologists are not the main power brokers or resource holders. When interfacing with global health, human biologists must continue to pursue health equity and decolonization through implementing critical, culturally informed bioethics frameworks centering community engagement.

1 | Introduction

Global health, a network of endeavors aimed at equitably reducing disease and promoting health and wellbeing for people worldwide, is a multidisciplinary field committed to providing essential information and services that improve human health and wellbeing. Yet, much of contemporary global health research is in need of decolonization. "Decolonization" has varying definitions, and this manuscript defines the process of academic decolonization of global health as one that: (1) Confronts historical and structural inequities, describing their origins and perpetuations; and (2) involves relationships of mutual respect and equal valuation of epistemologies, world views and belief systems between researchers and communities (Prior 2007; University of Michigan Decolonizing Public Health Teach-In 2018). This general claim regarding global health and decolonization extends to our discipline of human biology, a field where researchers integrate, are informed by, and inform global health frameworks. In particular, human biologists frequently use population health survey instruments, psychometric instruments, anthropometric indices, and biomarkers in accordance with the same protocols and often with similar objectives to those in global health (e.g., Dona et al. 2020; Gildner 2021; Gurven et al. 2017; Madimenos et al. 2022).

Contemporary global health approaches have origins in colonial and tropical medicine extending back to the 15th century (Packard 2016). The intent of these programs by European and North American parties was to protect colonizers while exploiting occupied people and nations (Farmer 2020). Recounting a history of the discipline of global health requires acknowledging egregious rights violations of groups intentionally stripped of power and voice (Crane 2013; Graboyes 2014; Graboyes 2015; Hussain et al. 2023). The annals of the field document numerous problematic practices, including the use of inadequate informed consent policies (e.g., drug manufacturer Pfizer's clinical trials on children in Nigeria [Wise 2001]), violation or disrespect of marginalized communities' beliefs and reinforcement of negative stereotypes (e.g., the Human Genome Diversity Project, the National Geographic Genographic Project [Dodson and Williamson 1999; Jacobs et al. 2010]), and the use of samples/data that were seized, stored, analyzed, or otherwise used in ways that violated the health and dignity of study participants (e.g., the misuse of blood samples of the Havasupai people of Arizona [Sterling 2011]). Yet, in today's context of Institutional Review Board (IRB) requirements, international health alliances, and ethical codes, it is deceptively easy to ignore enduring legacies that various unethical projects and protocols have left on the field and the influence they continue to exert (Büyüm et al. 2020; Morris and Morris 2016).

The goals of global health, as defined by the World Health Organization (WHO), are laudable but grounded in a particular form of medical bioethics that assume universality in rights, responsibilities, values, and goals, which may or may not align with the values and goals of many communities: "to promote health, keep the world safe, and serve the vulnerable" (World Health Organization n.d.). Colonial legacies have manifested in global health practices like designing and launching projects with little or no community input, emphasizing vertical approaches to healthcare delivery, allocating disproportionate resources to research rather than service delivery, and appropriating data and their use with little or no explicit effort to make data available to the communities from whence it derived to be accessed and used in accordance to their needs and purposes, prompting rising calls for decolonization in global health (Abimbola 2019; Büyüm et al. 2020; Chattopadhyay and De Vries 2008; Chattopadhyay and De Vries 2013; Crane 2013; Khan et al. 2021; Lawrence and Hirsch 2020; MacQueen et al. 2015). As interest in global health rises—a consequence of rapid globalization and increasing politization of health and development aid—discussion of ethical issues in global health research and clinical practice is essential and salient for both current and future practitioners, as well as those in the allied discipline of human biology (Anand and Pai 2023; Pinto and Upshur 2009).

The present paper illustrates the ubiquity of colonial frameworks in contemporary global health projects and offers recommendations to improve the practice of global health research administration, particularly for human biologists collaborating on global public health projects or otherwise using the tools shared by global health research. This article discusses community using Adhikari, Pell, and Cheah's (2019) definition as a foundation: Community "is considered to include the residents of settlements where health research is conducted, potential study participants, all other residents in the immediate locality and parties from outside the area, including the ministries of health, public healthcare authorities, local research institutes and researchers" (p. 1). For our use, this definition extends to include others who share a cultural identity with residents of settlements where research is conducted or with potential participants, though our definition prioritizes the contributions of those living in the immediate vicinity of the research and potential participants and their families.

Our perspective, as a small collaborative group of human biologists working at the juncture between biological anthropology and global health, comes from deep engagement with diverse local communities across multiple, long-term research projects. Drawing on these perspectives, we offer a working definition of a culturally informed bioethics framework relevant to human biologists, particularly those who partner with global health research entities or integrate global health research goals (i.e., evaluate health interventions, improve disease control and monitoring, identify impacts of social determinants of health, and so forth). We conclude by proposing a framework of six recommendations that collectively center community engagement and promote culturally specific bioethics codes in global health projects. These bioethics recommendations aim predominantly to prompt discussion and further reflection among human biologists—particularly those collaborating on or using the tools of global health projects—on these issues. Our goal is not to evaluate or judge existing and evolving human biology projects, nor is it to create a standardized checklist of activities or steps to take for all human biologists to follow when initiating new or revisiting old field projects. We carefully avoid developing inoperable, idealized recommendations or evaluating or accusing any specific individuals or research projects. Rather, we acknowledge that every project has distinct goals (e.g., understanding a phenomenon, establishing a baseline, developing interventions) and distinct constraints (e.g., overall budget, funding-body-determined resource allocations, national legal

frameworks, demographic composition of study populations, or level of research and/or health delivery infrastructure). There are also complexities surrounding local communities' capabilities to participate in all stages of the project, including language constraints, differential literacies, incompatible epistemologies, unequal access to institutional education, and paucity of local researchers in the science system, often derived from historical and ongoing power and resource differentials. With these diverse goals and constraints in mind, we seek to bring attention to gaps related to culturally informed bioethics frameworks in existing global health research where human biologists are situated and may have opportunities to begin to address these gaps. The recommendations seek to be flexible and constructive. Finally, we point to a number of projects at the intersection of human biology and global health which, while not necessarily perfect and always improvable, may offer inspiration for ways toward deeper, more meaningful community engagement and, ultimately, toward approaches to global health research which harness culturally informed bioethical currents.

1.1 | Historical Context of Global Health and Human Biology's Inequities and Their Legacies

To understand the inequities present within global health as a field, a brief overview of the historical context of global health is useful (Horton 2019). This overview necessarily involves engaging with colonialism. Importantly, colonialism has been, and still is, experienced differently around the world. The following is an example of the British model of colonial enterprise and its legacies today in global health, as British colonialism was a multi-century force behind many of global health's preceding iterations, though all colonial projects by definition disrespect local peoples, shaping the disregard for the many communities subjugated by colonial powers which continue to permeate global health research and practice.

Global health's earliest predecessor is colonial medicine. The term "colonial medicine" refers to public health initiatives enacted by colonial governments wherein the primary aim was to protect political and economic interests in colonized territories, and only incidentally to cure, aid, or protect local people living in those territories (Hirsch 2021; Packard 2016). Beginning with its earliest iterations in the 15th and 16th centuries, interventions often included forced quarantines, curfews, and medication/fumigation regimens (Farmer 2020). Over the centuries, colonial authorities regularly emphasized personal failings of individuals who contracted a disease, framing local populations as uncooperative, unscientific, unreasonable, and superstitious (Richardson and Farmer 2020). Unilateral control was often exerted to ensure that diseases did not spread to colonial motherlands. As a result, colonial medicine approaches actively contributed to the distrust, disrespect, and destruction of local and native healing traditions in favor of Western[1] biomedical interventions (Coghe 2020; Farmer 2020).

At the end of the 19th century, tropical medicine arose as an academic tool of colonialism/imperialism and focused on potential health hazards encountered by expanding empires (Gibson 2009; Wood 1978). This is a role shared by physical anthropology, a precursor to today's biological anthropology (the core discipline of human biology), which focused on measurement techniques and emphasized the study of human difference (Fuentes 2020). Anthropology was thus used as a colonial tool to establish racialized hierarchies of inferiority (Weaver 2022). The emergence of sanitation and hygiene movements of the 19th and early 20th centuries and the development of germ theory, vaccination, and microbials offered scientific proof that seemed to reify colonial medicine's existing policy of quarantining imperial subjects. Tropical medicine was further bolstered by scientific racist agendas; races were viewed as biologically distinct and hierarchically ranked according to unscientific notions of intelligence, physical fitness, and morality. Stories of mass fatalities among Indigenous groups in response to colonizer-introduced infections supported racial hierarchies that viewed so-called unfit groups (i.e., people of color) as lesser beings than white colonizers (Tankwanchi, Asabor, and Vermund 2023). Such casualties also strategically advanced the settler colonial objective of "elimination of the Native" (Wolfe 2006).

Scientists who provided evidence to counter scientific racist perspectives were often ostracized by their colleagues in the social sciences and anthropology. In the 1870s, physician and biologist Rudolf Virchow oversaw a study of over six million German schoolchildren that used cranial measurements to show there were no distinct German or Jewish races; these results were rejected by the European academic establishment (Marya and Patel 2021). Fredrich Tiedemann, a German biologist whose work compared the brain structures of Black and white individuals and found no differences faced a similarly cold reception, even as Tiedemann declared that perceived racial differences were the result of the "long-continued oppression and cruelty" against Black communities (Geller 2020). Links between new scientific practice and colonialism remained strong—for example, Sir Patrick Manson, founder of the London School of Tropical Medicine, funded his school through taxation of the colonies while concurrently serving as Medical Advisor to the British Colonial Office (Anderson 2006; Chernin 1992; Coghe 2020; London School of Hygiene and Tropical Medicine 2019; Tankwanchi, Asabor, and Vermund 2023).

After the turmoil of World War II and political independence movements of the 1950s-60s, international health emerged as an outgrowth of tropical medicine to promote economic development and unite global efforts toward achieving widespread primary healthcare (Weisz and Tousignant 2019). Supporters attempted to promote both economic growth and primary healthcare for all without recognizing the power imbalances inherent in their approaches to healthcare delivery; because of this oversight, international health agendas centered around foreign aid often intentionally or unintentionally perpetuated neocolonial dependencies between the Global South and Global North (see Fentahun 2023 for a critique of this aid system). One oft-cited example of egregious and racist research practice during this time is the Tuskegee Syphilis Study, in which the U.S. Public Health Service—the Center for Disease Control's (CDC) predecessor—intentionally withheld treatment from over 400 black men between 1932 and 1972 to study the natural progression of the disease (Tobin 2022). In 2010, it was discovered that the same office had infected over 1300 Guatemalan participants with syphilis and gonorrhea in 1946 with the goal of developing more effective treatments (Rodriguez and García 2013).

While health authorities claimed improvements in treatments like those sought by these studies would benefit the world, racist beliefs exacerbated existing inequalities and perpetuated harm against marginalized groups.

Despite the WHO's Declaration of Alma-Ata in 1978—acknowledging the multifaceted nature of health and global inequities present in primary health care access—and similar sentiments that followed, international health was unable to fully sever itself from its colonial predecessors and eventually gave rise to global health's modern iteration in the late 20th century (Basch 1991; World Health Organization 1978). In the face of increasing public-private health partnerships, the HIV/AIDS pandemic, and growing recognition that health issues transcend national borders in a rapidly globalizing world, the 1980s and 1990s illustrated the need for a global rather than "international" approach to health (Weisz and Tousignant 2019).

Today, global health is rapidly evolving as a field, with a burgeoning and diverse group of scholars reflecting on its role as both a product and perpetuator of colonialism. Krugman (2023) notes that the current decolonization movement in global health can be traced to the 2015 *#Rhodesmustfall* movement in South Africa and ensuing student protests and conferences. From there, he argues that formalized student groups at institutions like Duke and Harvard began some of the earliest U.S. calls for discipline-wide change in 2019. Specifically, some scholars are now challenging fundamental approaches to health research—including study protocols, bioethics, and benefit distribution in population-level global health studies—by highlighting intrinsic power asymmetries embedded in global health research (Abimbola 2019; Harper and Pratt 2021; Lawrence and Hirsch 2020; Richardson and Farmer 2020; Tai 2013). Simultaneously, authors have called attention to the co-option of "decolonization" by "elite global North organizations" and the potential of alternative perspectives to health offered by diverse, non-Western paradigms (e.g., Latin American social medicine) (Breilh 2021; Krugman 2023, p. 2; Laurens and Abadía-Barrero 2024).

Colonialism has reinforced global health inequities in both global and locally specific ways. For example, Paul Farmer's analysis of the 2014 response to Ebola in West Africa illustrates a direct link between colonial under-provisioning of healthcare and today's health responses: decades of neglect of health infrastructure in previously colonized countries like Sierra Leone left weak health systems in their wake, unable to offer care to the sick and further underfunded by externally imposed austerity (Farmer 2020). Many economies in former colonies were designed to be fundamentally extractive—removing raw resources and shipping them to processing centers in other parts of the world—and viewed health concerns as unimportant unless directly relevant to colonists, contributing to the development of under-resourced health systems that exacerbate inequalities today.

The Ebola epidemic of 2014 was not the first time that colonial power imbalances played a role in international health policy. From the World Health Organization's 1970 proclamation of a cholera outbreak in Guinea without country approval—prompting Guinea's departure from the WHO—to a history of genetics research that has reinforced harmful stereotypes about minority groups, colonial power structures permeate the ways action is taken in global health efforts, often denying participants and communities a voice, resources, and long-lasting benefits (Farmer 2020; Mackey et al. 2022).

While human biology has not yet been popularly scrutinized to the same extent as global health (e.g., Büyüm et al. 2020; Hirsch 2021), it struggles with its own colonial legacies. Notably, as mentioned, the foundation of human biology is one of racial classifications that enabled social Darwinists and eugenicists—some of them human biologists themselves—to thrive in the scientific community (Hendricks 2006; Little 2012; Marks 2012). Physical anthropology, biological anthropology's predecessor, further enabled the colonial project. Blakey (2020) writes that "the mainstream of American physical anthropology began as racist and eugenical science that defended slavery, restricted 'non-Nordic' immigration, and justified Jim Crow segregation" (p. 316). Unethical experimentation in anthropology, like the use of Hawai'i as a "racial laboratory" for physical anthropologists in the 1920s and '30s, further established racial divides as a key focus of what is today known as biological anthropology (Anderson 2012). It is not just global health that contributes to modern colonial legacies in healthcare and beyond. Biological anthropology and human biology were and continue to be complicit in colonialism's racializing projects and their legacies (Blakey 2020).

1.2 | Human Biology and Global Health: An Ongoing Alliance

Human biology, a sub-discipline of biological anthropology aimed at understanding the origins and implications of contemporary human phenotypic (biological and cultural) variation, is intertwined with the ethos and practices of global health. In his historical overview of human biology, Little (2012) notes that, while biological anthropology is the field's core discipline, human biology practitioners come from diverse disciplinary backgrounds and areas of expertise both inside and outside anthropology, spanning genetics, endocrinology, psychology, geography, demography, nursing, and medicine. This diversity reflects the recognition that human variation and human well-being comprise "complex ecosystems" (p. 29, 38) with multifaceted interactions.

In addition to explicit collaboration between individual practitioners, human biology and global health often have mutually beneficial research agendas (e.g., Hardon and Pool 2016; Mendenhall 2017; Panter-Brick and Eggerman 2017). Little notes that human biology has "deep traditions of medical studies," encompassing nutrition, epidemiology, public health, and related fields from the early 20th century onwards (Little 2012, p. 41). This has led to frequent collaborations between global health projects and human biologists, with human biologists often involved directly in global health surveys or in carrying out secondary data analyses (e.g., Garello et al. 2024; Lee et al. 2015; and Schrock et al. 2022).

Human biology's deeply biocultural and anthropological understanding of health offers unique insights on global health endeavors, and its multidisciplinary nature can aid in

better understanding complex problems and promoting cross-discipline collaborations (Hoke and Schell 2020; Little 2012). Hoke and Schell (2020) argue that while the biocultural approach common in human biology may lack a single agenda, its diverse outcomes have a set of common themes—an approach useful to human biology's diverse practitioners. Common methods in human biology, such as the implementation of smaller scale studies (often smaller both in sample size and funding than traditional population-level global health projects) and reliance on secondary data use from larger projects beyond human biology's (amorphous) bounds, also introduce pressing and unique ethical dilemmas to larger conversations (Adegboyega and Zhang 2023; Fuentes 2023). For example, how might we collect sufficient consent to protect participants during secondary data analysis, and how do we benefit communities when engaged in smaller scale endeavors? How do we ensure deeply informed consent or decolonized approaches to data management, use, and interpretation if the projects yielding the data are not ours to direct?

It is also important to acknowledge the shortcomings of contemporary human biology projects. While we explicitly critique global health research in this paper—projects with which human biologists are often involved—it is also constructive to note these criticisms are relevant to smaller scale human biology-specific work as well. For example, while human biology projects like the Max Planck Institute for Evolutionary Anthropology's work with Hadza foragers or the Shuar Health and Life History Project have worked to deliver valuable, ethical human biology research and direct community benefits, including healthcare and education services, these and other projects may struggle to secure the long-term funding necessary to support infrastructure initiatives (the Max Planck Institute's work has taken over 20 years), operate within Western academic and institutional frameworks that prioritize published research over collaboration, and rely on foreign—largely Western—researchers to write study protocols and organize research initiatives, despite growing focus and investment in project co-direction and local facilitation of research (Harper and Pratt 2021; Horton 2019; Max Planck Institute for Evolutionary Anthropology 2024; Shuar Health and Life History Project 2020). Authors, including members of the Shuar Health and Life History Project leadership, have recently reflected on challenges faced by the Shuar Project and their permutations across the project's lifespan, including changes in practice and perspective to address their legacies today (Snodgrass et al. 2024, Manuscript in preparation). Our recommendations are tailored to larger global health projects but may also inform strictly human biology work on all scales as practitioners tackle similar challenges.

The emergence of human biology as a distinct field occurred over decades of cross-discipline collaborations and evolved as a product of borrowing and repurposing from other fields in a variety of ways (Little 2012). Today, this leaves the discipline difficult to define, as it encompasses a continuum of experiences and ever-shifting ethical and methodological standards and priorities. This paper primarily addresses human biologists involved in population-level global health surveys in any capacity, including those who use secondary data from these projects. However, while our recommendations may be actioned differently depending on a study's context and scale, the basic principles introduced below are framed flexibly enough to apply to smaller scale human biology-specific work. Our points are not prescriptive, but we hope they are useful as a call for reflection and preliminary steps to enaction.

1.3 | Anti-Colonial Perspectives in Global Health and Human Biology

1.3.1 | How Do Global Health Institutions Shift From the Generation of Knowledge to Become Agents of Action?—Horton 2019, p.996

Population-level surveys play a critical role in global health, as these research projects collect and disseminate relevant health data that national and community parties act on. While the definition is somewhat subjective, here we define population-level global health surveys as large, representative samples from a study population participating in research led by researchers from one or more disciplines within global health. These surveys often include questionnaires administered by interview and frequently incorporate direct anthropometric measures (e.g., height, weight, and waist circumference), functional measurements (e.g., grip strength and walking speed), and biomarkers (e.g., those obtained from blood, saliva, and hair). Global health surveys may be directed by a variety of national and/or international interests, and while aims and data access policies vary, a main goal of such surveys is to inform development of evidence-based interventions and policies (Adams 2016; Biruk 2018).

While these global health surveys require building relationships among researchers, community members, and other potential partners, population-level global health surveys—and human biology research more broadly—may employ methods and practices with colonial origins that reinforce power imbalances, such as aforementioned limited delivery of benefits or data collection and use without community input. Thus, these projects have the potential to perpetuate colonialism, particularly when carried out in low- and middle-income countries (LMICs) and/or with Indigenous or other historically marginalized populations. Professional hierarchies and agendas, funding, and priorities within the institutional realms of global health, particularly those positioned in Western settings, are similarly shaped by and reify colonial/neocolonial legacies. Critics of global health argue that power asymmetries exist across all facets of the research process, ranging from who leads research to who funds global health work. For example, researchers from LMICs where global health research is being conducted typically lack power in study decision-making processes; funding for projects is largely funneled toward high-income country (HIC) researchers and institutions, who direct the study's priorities toward predetermined research goals without community consultation; and community engagement and benefits are often insufficiently described or altogether lacking in global health and human biology (Harper and Pratt 2021). Others critique the way prestige is conferred in both academic fields, arguing that systems that prioritize publications (especially in academic journals written in English) and professional promotions de-incentivize time and resource investment in capacity-building within study communities. This lack of investment in local infrastructure creates financial and access barriers for researchers in LMICs with

fewer resources, further concentrating power in the hands of academia in HICs (Abimbola 2019; Horton 2019; Opher, Ogel, and Nquet 2023).

Medical anthropologists have been at the forefront of these structural critiques. Nancy Scheper-Hughes was one of the first to clearly articulate how "analogies can be drawn between the current relation of anthropology to medicine, and the history of anthropology's relations to European colonialism" (1990, p. 63). Criticisms of the presumed "inevitability" of the colonial enterprise by its administrators and its modern analogy in global health has been extended by contemporary medical anthropologists who critique the enthusiasm of global health teachers and practitioners to maintain the discipline despite their ambivalence about its practices and current decolonization movements (McKay 2018; Scheper-Hughes 1990, p. 63). Richardson (2019) further calls for global health decolonization from a critical medical anthropology view and argues that global health benefits from maintaining inequities as a professional and academic organization and does so by ignoring complex social dimensions of ill health, presenting these views as unreconcilable with biological definitions of disease (see Porter 2005).

We heed the growing calls for decolonization and anti-colonialism of global health and human biology (for examples spanning over a decade, see Büyüm et al. 2020; Chattopadhyay and De Vries 2008; Farmer 2020; Horton 2019; Khan et al. 2021; McKerracher and Núñez-de la Mora 2021) and recognize our aforementioned critiques of population-level global health surveys are not unique to the global health academic enterprise: Indeed, similar shortcomings are faced by human biology projects at all levels. The motivation for our recommendations below comes from interactions with these critiques and deep engagement with communities involved in our human biology and epidemiological research, including collaborations with Indigenous and other marginalized communities in both LMICs and HICs and recognition of the impacts of our own practice. In particular, authors of this paper are working with Indigenous and/or racialized populations and communities in Ecuador, the United States, Aotearoa/New Zealand, Canada, Mexico, Denmark, Siberia, Rwanda, and many others. Furthermore, some of us have been or are involved in population-level health studies with the WHO, including the World Health Survey Plus (MJG, AMD, JJS) (WHS+; https://www.who.int/data/data-collection-tools/world-health-survey-plus) and Study on global Aging and adult health (AMD, JJS) (SAGE; https://www.who.int/data/data-collection-tools/study-on-global-ageing-and-adult-health).

We recognize that there is massive variation in participant communities and their capacity to engage with researchers, their internal organization, their history and associations with research, and the barriers they face (educational, monetary, political) to strengthening local research and health infrastructure. There is also substantial variation between survey projects themselves in scope, capacity, location, and monetary support; we encourage practitioners to consider feasible ways projects can implement our six recommendations to the greatest extent possible, given their projects' size, scope and power (see Table 1).

Simultaneously, we recognize the set of assumptions about global health's participants and practitioners that we, the majority of whom are not members of their study populations, bring to this paper and larger discussion. Human biology as a field struggles to avoid Abimbola's (2019) "foreign gaze," where publication on international research skews disproportionately toward a foreign, similarly biased, audience—as evidenced by the disproportionate number of global health and human biology studies cited here that are conducted by outside-community researchers working in diverse research settings and published primarily for non-local audiences. While many human biology projects are operated by extra-community researchers, this is not the case for all human biologists. Human biology and global health researchers may consider themselves members of study communities along one or multiple axes, including nationality, race, residence, occupation, or other aspects of personal identity. Pooling all of these diverse researchers is ultimately unsatisfying, as it is impossible to list all possible relationships to, or combination of relationships to, a study site or participant group. Additionally, each of these relationships entails unique power differentials. For example, researchers who identify as from study communities may feel unseen, unsupported, or called upon to educate outsider collaborators on anti-colonialism or local traditions with insufficient recognition of their contributions or of the colonial power dynamics inherent in this system of research and organization. However, community membership does not always guarantee decolonial attitudes toward research, as community member researcher involvement is diverse and complex. While we acknowledge this categorization of researchers is overly broad, we invite individual actors to self-reflect on their own position within these power gradients (McKerracher and Núñez-de la Mora 2021) and to uphold the spirit of the recommendations here. While this paper largely addresses researchers working in communities that are not their own, we acknowledge the invaluable contributions and specific needs of community member researchers in human biology.

2 | Six Recommendations to Improve Anti-Colonialism in Global Health and Human Biology Research

Here, we introduce six recommendations that form a framework for centering communities in population-level global health surveys and smaller scale human biology-specific work (Figure 1). We recognize that global health is both a distinct discipline and a loosely used term to denote research methods and goals in allied fields such as epidemiology, medical sociology, medical anthropology, and human biology, among others. Thus, our recommendations here are inherently and necessarily multidisciplinary. That said, we acknowledge that most readers are likely to be human biologists, and that many of us as co-authors consider human biology to be our home discipline. These recommendations were shaped by our experiences carrying out human biology research in partnership with global health institutions and/or using instruments, methods, and data from global health initiatives. Our recommendations began as the result of collaborative discussion between authors MJG, AMD, and JJS to address unmet needs of the WHO's WHS+, of which all were involved in the preparation process, and were refined through extensive literature review and reflection on personal experiences alongside our human biologist coauthors (FCM, GU, ZMT, LJM, ANM).

TABLE 1 | Recommendations in Practice.

Bioethics recommendation	Example of project that successfully addresses recommendation	Project details (aim, location, type)	Key approaches
1. Community member engagement	Advancing Adolescents Program evaluation (Panter-Brick 2022)	**Aim:** Evaluate the success of the Advancing Adolescents Program to assess its positive impacts on adolescent mental health and emotional development in areas in conflict **Location:** Jordan **Type:** Evaluation of government/NGO program	• Partnered with local expert Prof. Rana Dajani, leveraging her longstanding relationships with refugee families and NGOs • Recruited, trained a team of local women to facilitate the study • Changed institutional culture to recognize local communities as co-producers of evidence • Held multiple community meetings that emphasized local ownership and shared purpose • Incorporated community feedback to create a transparent selection process for intervention and control groups • Added evaluations of resilience to the study goals after youth participant feedback criticized their negativity when looking at trauma and stress
2. Delivery of health results that incorporate and respect cultural context	YouthLink Youth Mental Health Program (Sabbioni et al. 2018)	**Aim:** Provide flexible, evidence-based, culturally informed therapeutic practices to Aboriginal, Torres Strait Islander, and non-Indigenous youth **Location:** Western Australia **Type:** Government mental healthcare program	• Employed 2 full-time Aboriginal mental health practitioners • Implemented guiding principles of care that address Aboriginal concepts of health • Used narrative storytelling and relationships with people and places to make meaning about experiences • Delivered therapy at locations preferred by young people • Provided recognition of the role of family and kinship in respecting young people's choices about care and their community's traditional rules • Aboriginal practitioners were cosignatories on all care plans developed by non-Indigenous clinicians
3. Allocating resources to health, academic, and personnel infrastructure	Kisalaya Project (Kojima et al. 2017)	**Aim:** Evaluate performance of traditional birth attendants and monitor mother-to-child HIV transmission while providing training and deep community engagement in antenatal health programming **Location:** Mysore, India **Type:** Public health research and programming	• One full-time female physician hired to develop training infrastructure and manage the program • Hired, trained local female staff for many positions: physicians, managers, community health workers • Trained traditional birth attendants in safe delivery practices and provided delivery kits • Offered mobile health consultations for pregnant patients • Provided laboratory assessments and follow-up visits • Collaborated with National Rural Health Mission to train Accredited Social Health Advocates and auxiliary nurse midwives

(Continues)

TABLE 1 | (Continued)

Bioethics recommendation	Example of project that successfully addresses recommendation	Project details (aim, location, type)	Key approaches
4. Provide ongoing access to health information	Sustainable Emergency Referral Care Initiative (Olokunde et al. 2016)	**Aim:** Co-develop materials with communities to promote use of Sustainable Emergency Referral Care **Location:** Northern Ghana **Type:** Global health	• Conducted focus group discussions to evaluate existing knowledge and elicit recommendations • Developed context-specific and culturally tailored educational programming • Produced educational videos in local dialects • Created educational illustrations • Organized local groups to compose educational songs
5. Data frameworks that respect community sovereignty	First Nations Technology Council's Data Governance Strategy (First Nations Information Governance Centre 2020)	**Aim:** Provide desired outcomes, guidance, and a framework for Indigenous data sovereignty through data stewardship and identification of rights holders **Location:** First Nations, Canada **Type**: Government strategy report	• Developed guiding principles to First Nations Data compliance • Emphasized community-driven and nation-based approaches • Established nine pillars for data governance, including First Nations data access, collection, and management • Recognized First Nations members as rights holders in their data • Implemented blockchain platforms for resource management
6. Use of culturally informed bioethics frameworks	H3Africa Consortium's Ethics Framework (Human Heredity and Health in Africa 2017)	**Aim:** Provide an ethics and governance framework for biobanking and genetics research **Location:** 23+ African countries **Type:** NGO/government strategy report	• Developed a framework sensitive to and respectful of multiple, diverse African values and cultures • Emphasized that research should promote respect for individuals and communities, fairness, equity, and reciprocity • Ensured genuine and active intellectual participation of African investigators and stakeholders • Included sections on community engagement, consent, avoiding harm or stigma, benefit sharing, and capacity building

Note: The authors consider the following projects—both within and beyond human biology—useful, specific examples of implementation of our recommendations, though we note that each has a unique context and set of challenges.

Our recommendations aim to strengthen community participation as much as possible, and thus collaboration on any level must focus on community needs and priorities in a way that is attainable for the study. For example, in communities where individuals are overwhelmingly focused on day-to-day survival, research participation may be perceived as an oddity or a luxury, and communities may expressly request short-term solutions to immediate problems. Researchers should strive to support communities outside of traditional methods and funding sources and consider the most ethical ways to both cater to immediate needs and continue to engage communities in long-term planning to the best of their abilities. Recognizing participant and study variation across the human biology-global health interface, we envision the way in which inequities in global health research may be minimized through implementation of the following recommendations:

1. Engaging community members: Researchers, especially those coming from HICs, should pursue equitable partnerships with local and trusted community leaders and members, local higher education and research institutions and personnel, health professionals, and knowledge resources at every stage and level of the study. Equitable partnership may include, among other things: shared or locally led leadership and setting of research priorities and strategies; funding allocations that build local power and autonomy; and authorship rights that reflect contributions while also seeking to correct for historically rooted biases. This multi-pronged approach can serve to reduce power disparities between researchers and communities being studied. Moreover, local-level engagement is an investment in study quality and longevity.

   Building trust with local populations, directing study priorities toward needs in communities (rather than the perceived needs of funding organizations), and demonstrating genuine respect of local customs, people, and beliefs are three strands of engagement that have the potential to produce community-led, engaged, long-term research relationships.

   Ideally, community member engagement should begin before the research project—actively engaging community members in the study design and setting of research priorities—and preferably should build on preexisting relationships between researchers (both local and international), local institutions (e.g., health or sanitation departments), and community members. Additional aims for successful community-based participatory research include translating and co-creating culturally informed study documentation and consent documents alongside native speakers (e.g., López-González and Núñez-de la Mora 2024), holding regular meetings and trainings with community members to clarify study methods and aims, inviting community contribution and discussing study progress, creating a process for fieldworkers and participants to report concerns about study design or aims, training community members in data collection and employing members as project surveyors, and providing an opportunity to co-interpret study results with community members (Biruk 2018; Graboyes 2015). Informed consent policies should consider historical and social influences on participation and the community's relationship to research (i.e., colonial agents or community leaders historically mandating research participation), be mindful of existing vulnerabilities of poverty or marginalization that could influence participation, and ensure that participants clearly understand the study's outcomes, benefits, and available interventions (Graboyes 2015).

   A broad literature on community-based participatory research exists in global health spaces (e.g., Friedman 2020; Satcher 2005; Wallerstein et al. 2017) and integrating these approaches into human biologists' work on these and independent projects is encouraged. Indeed, a number of recent position papers within human biology have argued for comprehensive use of community-based participatory methods in human biology (Ravenscroft, Schell, and Cole 2015), encompassing a growing movement over the last one to two decades to implement some of these community-engaged approaches within human biology projects. Examples of effective implementation of community-centered global health-related human biology research, including community-based participatory research methods, include Schell and collaborators' work with the Mohawk Nation at Akwasasne and the effects of polychlorinated biphenyls (PCBs) on the wellbeing of Mohawk youth (Ravenscroft, Schell, and Cole 2015; Schell et al. 2007), Sydora et al.'s (2021) investigation into the experience of menopause among First Nations women, the Canadian Institutes of Health Research's Indigenous Healthy Life Trajectories Initiative (I-HeLTI) (Canadian Institutes of Health Research 2023), and Castillo-Burguete and collaborators' participatory research in Yucatan, Mexico (Castillo-Burguete, Viga de Alva, and Dickinson 2007). These projects encourage Indigenous leadership, note the positive impacts of enhanced access to health knowledge among community members, and encourage researchers to practice personal reflexivity on the impact of their identities in their work (Canadian Institutes of Health Research 2023; Schell et al. 2007; Sydora et al. 2021). Panter-Brick and her team's work with Mercy Corps programming in Jordan emphasizes the value of engaging participants as meaningful co-producers of knowledge through community-based and culturally informed methods, study implementation, and benefit delivery (Panter-Brick 2022). These projects focus on the community's interests, emphasize time and resource investment in communities, establish a method to discuss research and disseminate results with the community, and aim to develop sustained future partnerships around data and research.

   We note, however, that this first recommendation for comprehensive community engagement is multi-faceted and many-layered. This means that some elements of community engagement can be incorporated into most research projects (e.g., getting community member feedback on measurements and interpretations), but many of the higher order elements (e.g., establishment of locally rooted training programs) may face enormous structural barriers which are likely beyond the scope of action of individual human biology researchers, particularly if those researchers are embedded in larger, more powerful global health projects, if those researchers are junior, or if those researchers themselves come from positions that are

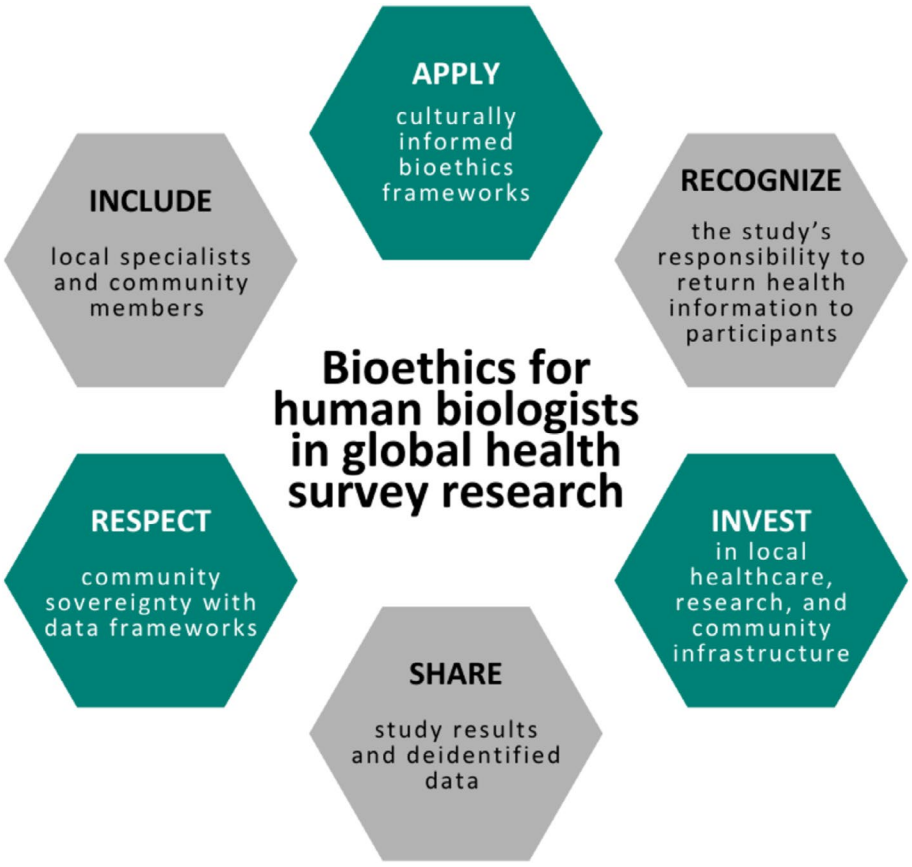

FIGURE 1 | Six bioethics recommendations for human biologists who are engaging in global health survey research and are committed to developing, implementing and reflecting on culturally informed bioethics approaches. Our six recommendations are presented in a way that is intentionally non-linear; there is no standard or one-size-fits-all path from one to any other.

socially and/or economically marginalized. To reiterate, our call is to reflect on these issues and begin to address them (e.g., by recommending the funding of projects that allocate resources to local infrastructure development via community participation when we sit on funding review panels) where possible.

2. Delivering health results that incorporate and respect the cultural context of participants: When research studies objectively measure health indicators, such as through use of point-of-care testing (POCT) (see Gildner et al. 2022; Madimenos et al. 2022), researchers have a professional and moral responsibility to deliver health results to participants, and they should do so in ways that align with the healing systems and cultural context of participants. Project designs that include health assessments and delivery of results must, to the extent they are able, incorporate strategies to ensure access to healthcare or treatment pathways for participants who receive diagnoses. Participants are individuals engaged in their own and their families' healthcare who choose to provide data which can be used to understand and support health at a population level (Madimenos et al. 2022). Culturally, trauma-, and violence-informed delivery of health information ensures the local population's own conceptions of health and illness are respected and that results are likely to be received in ways that are meaningful to community members. This necessitates community engagement and comprehension of study aims and methods in the study design, interacting with participants, and ensuring adequate understanding and follow-up (Varela-Silva et al. 2021). Researchers also have a responsibility to use culturally informed framing and language that mitigates harm, stigma, or pathologization when delivering results to participants. Respecting and acknowledging local and traditional systems of healing—through, for example, conversations with participants about health beliefs or partnerships with local medical leaders—can further empower participants to seek care that makes sense to them, supports a holistic view of health and wellbeing, and affirms existing care in communities. Providing results in this context can also create a shared understanding between surveyor/provider and participant/patient and requires surveyor/provider cultural humility, which can contribute to a more trusting and respectful foundation for continued education and intervention and mitigate power discrepancies in result delivery.

Studies should consider how best to integrate the process of results dissemination and healthcare access with local, Indigenous, and traditional health infrastructure. The Tsimane Health and Life History Project (THLHP) is one successful example of infrastructure strengthening whose long-term work in Bolivia operates using a code of ethics that includes "provid[ing] aid and assistance where possible, from specialized medical care on a

case-by-case basis to humanitarian efforts following environmental disasters" (Gurven et al. 2017). The THLHP and all associated data use is approved by a permanent Data Council. This Council is comprised of Bolivian doctors, THLHP leadership, Tsimane leadership, and Tsimane community members, and works to ensure result delivery, interpretation, and benefits are in line with Tsimane goals and values.

Again, we note that there are numerous structural barriers to implementation of this recommendation, particularly for human biologists who represent minor voices embedded in large, ambitious, cumbersome global health projects, which may not have resources earmarked for delivery of health results. We can, however, advocate for applying for additional resources to support health results delivery or use our own time and expertise to provide these results when we are in the field. Moreover, in cases where a health results delivery plan is in place, we can insist on incorporating culturally informed (as well as violence- and trauma-informed) methods for delivery.

3. Allocating resources to health, academic, and personnel infrastructure: Projects should allocate resources to invest in healthcare, community knowledge transfer, and research infrastructure in communities involved in the study. To achieve successful health targets, such as those outlined by the UN's Sustainable Development Goals, communities need access to basic health care; as such, improving access to this care must be a goal for any global health agenda. Investment in local infrastructure also forces global health agents to consider the limits on current research funding. For example, ongoing investments challenge many current grant models (especially government grants) that often disperse funding based on inflexible year or multi-year limits, funding that supports only specific research aims rather than a project or site, or funding agencies that set research agendas without consultation with the study community. One example involves U.S. research institutions where Facilities and Administrative costs (F&A; aka, Indirect Costs) are federally negotiated and cap the rate that institutions can charge for infrastructural contributions. While these rates are often lower when working offsite from these institutions, they are not meant to cover infrastructure costs at field sites. Again, this prioritizes wealthy institutions in HICs at the expense of collaborating institutions and communities and creates inequities for LMIC or marginalized primary investigators potentially applying to these same funding mechanisms. Researchers should call attention to these funding limits at their universities, in publications, and in funding proposals where possible—for example, by including long-term infrastructure investments and community benefits in grant application impact statements or by addressing funding allocation in published papers.

Research investment should include working with data collection teams and research partners and/or research assistants from the local community as active collaborators (see our first recommendation above), and individuals should be fairly compensated financially and recognized socially and intellectually for their irreplaceable knowledge, skills, connections, and relationships. Such partners use specialized skills and mediate interactions between the project and local cultures, beliefs, and values. Failing to compensate these groups and/or neglecting to engage with them as active and power-holding collaborators when HIC researchers are conducting work in LMICs has been criticized as colonial exploitation of Indigenous labor (Biruk 2018). Simultaneously, we acknowledge this HIC researcher/LMIC study setting dichotomy is not universal, and LMIC researchers conduct global health work in their own communities and elsewhere independent of HIC involvement. In all projects, infrastructure investment in local communities, wherever feasible, is encouraged by our recommendation.

In addition, researchers should support training in skills deemed valuable by the community and work to connect surveyors with future employment opportunities. Leveraging and supporting local resources and economies, such as sourcing from local businesses, should be encouraged whenever possible.

Investment in healthcare staff training is a rising priority in global health projects, as exemplified by NGO-sector groups like Partners in Health (Farmer 2020)—fewer academic studies have emphasized infrastructure investment in study regions, likely primarily due to aforementioned funding constraints. However, community health staff training and mobile health clinic provisioning in Mysore, India provides an example of research that successfully integrates capacity building and infrastructural development (Kojima et al. 2017). Training programs have the potential to reduce power imbalances, increase community participation in decision-making, and aid in creating sustainable systems after data collection has concluded, especially when led by community-member researchers. The University of Global Health Equity in Rwanda and the Rwandan Human Resources for Health Program offer two successful examples of this capacity strengthening, as both aim to build a generation of health practitioners and national and international leaders (University of Global Health Equity 2023). The Rwandan Human Resources for Health Program specifically focuses on sustainable Rwandan-U.S. mentorships, clinical and research training through Rwandan universities, and in-country healthcare staff retention through improvement of clinics and training facilities outside of traditional aid funding paradigms and under Rwandan leadership; human biology/global health projects should look to sustainably develop similar initiatives (Binagwaho et al. 2013; Cancedda et al. 2018; Ndenga et al. 2016). As mentioned above, we recognize there are funding, bureaucratic, and individual career and prestige barriers that may pose challenges to these investments. Again, we encourage application for additional funding, use of personal knowledge and advocacy, and reflection on these barriers and potential investments to deliver these results however feasibly possible.

4. Providing ongoing access to health information: Studies have an ongoing responsibility to provide access to research results and facilitate equitable, culturally informed health literacy after data collection has concluded.

Researchers should share results with communities before publication to receive feedback on data interpretation; this ensures results are presented in ways that are respectful and that potential harms to communities are minimized. Efforts should also include extending community member access to academic papers using data from the study. This requires consideration of barriers like journal paywalls and language differences to provide stakeholder communities and collaborators with meaningful access to results. Projects like Access: Infant and Maternal Health have included research assistants in data analysis and publication authorship (Foster et al. 2010). Creative efforts have been made to raise awareness of the most pervasive health challenges in targeted communities including *Taru*, a radio soap opera broadcast in four Indian states that promotes goals surrounding gender equality, community harmony, and reproductive health (Singhal et al. 2004). Similarly, international youth filmmakers organized *Global Dialogues,* where media content is created to bring awareness to HIV/AIDS (GlobalDialogues n.d.). Celebrity-endorsed music videos are used to encourage developmental origins of health and disease health promotion in Uganda (Macnab and Mukisa 2019). These creative projects offer inspiration for future efforts that can strengthen global health research and engagement. Community members should be involved in data dissemination and in creating knowledge mobilization materials tailored to communities in a culturally and contextually appropriate manner. While many funding bodies and universities have begun to emphasize or require public and/or community dissemination of results, further changes in academic culture—specifically in tenure requirements and measurements of prestige—are necessary to ensure time and investment in this dissemination is incentivized, especially when compared to more traditional academic metrics of success (e.g., journal publications). These increasingly mainstream dissemination efforts also necessitate compatibility with participant communities' infrastructure, capabilities, and ethos and careful consideration of participant confidentiality. While infographics, social media, and podcasting are normalized vehicles for information dissemination, they may also act as vehicles to reproduce a foreign gaze. Here, we advocate for dissemination strategies that align with accepted and feasible ways of sharing information within the community, not as 'soft' imposition. Rather, we encourage researchers to reflect on what makes dissemination exercises culturally relevant.

5. Creating data frameworks that respect community sovereignty: Studies should work within data frameworks that respect community rights, including a community's right to use, access, and control dissemination of data. While much of this manuscript describes health inequities among LMICs and marginalized communities broadly, we acknowledge that data management has unique implications for Indigenous groups globally. Exploitative research practices that have historically perpetuated violence against Indigenous people coupled with well-documented evidence that, globally, Indigenous groups suffer from poorer health outcomes compared to non-Indigenous populations living in the same region (including disproportionately higher rates of lower life expectancy, infant/child and maternal mortality, malnutrition and stunted growth, heavy infectious disease load, and depression [Snodgrass 2013; Valeggia and Snodgrass 2015] serve to uniquely shape Indigenous vulnerability within the context of Western scientific and epidemiological approaches.

   The current open-access data movement (which, in its unrestricted form, aims to make data freely available to the public in a repository) is not intentionally extractive or exploitative but may unintentionally further these legacies in the name of open science. Critics of open access data note that without data ownership, data may be used to further stigmatize or "commodify" certain group identities and that data are freely available to corporations to generate economic profits without providing technological advances or investment to participant communities[2] (Tsosie et al. 2021, p. 74). While open access data have the potential to increase replicability and foster a more connected scientific community, global health and human biology have unique considerations when sharing data responsibly, such as meaningfully including LMICs, Indigenous, BIPOC, and other marginalized communities in the data storage and access process (Mulligan et al. 2022).

   Working alongside communities to develop data storage, access, and usage systems that address community concerns and respect community sovereignty is essential in any project; this may also include investment in basic services (e.g., electricity, internet, and so forth) and development of infrastructure that can benefit community members and leadership and facilitate data access (see Recommendation 3) (Mackey et al. 2022; McKerracher and Núñez-de la Mora 2021; Tsosie et al. 2021). Many advocates of responsible data ownership support using the C.A.R.E. Principles to structure action around Indigenous data access and ownership: **C**ollective benefit, **A**uthority to control, **R**esponsibility, and **E**thics (Jennings et al. 2023). Mackey and colleagues highlight the potential of blockchain-enabled Indigenous data sovereignty frameworks—in which decentralized, cryptographically secure transactions are linked in a user-governed database—and their integration of tribal governance with academic and outside government (Mackey et al. 2022). Nonprofits like the First Nations Technology Council in Canada have been specifically lauded for their blockchain work and its use in creating platforms for resource management (Jennings et al. 2023; Mackey et al. 2022).

6. Using culturally informed bioethics frameworks: Bioethics are sets of implicit or explicit guidelines for initiating and implementing research, practice, and policy related to human health or biology in ways aimed at increasing one or more moral goods (Robson et al. 2019; Stapleton et al. 2014). Human biologists, due to their close connections with both biocultural anthropology and global health, often face conflict between universalizing ethics principles—favored by global health institutions—and ethical prioritization of human cultural and biological diversity—a tendency of anthropologists broadly (Hoke and Schell 2020; Melé and Sánchez-Runde 2013). We believe researchers should apply culturally informed bioethics frameworks to their research, intervention, project management, and dissemination

approaches. While we recognize both universal and localized approaches can be valuable in certain contexts, bioethics standards issued by organizations like the WHO and the United Nations Educational, Scientific and Cultural Organization (UNESCO), as well as those applied by most academic institutional ethics review boards at universities, rely heavily on a Western philosophical tradition and center a universalist or cosmopolitan view of bioethical standards and priorities. Such approaches may lack salience or may recapitulate elements of colonialism when applied to LMICs, Indigenous, or other marginalized communities in HICs. Therefore, global health research should look toward adopting bioethics codes that consider the differing traditions, beliefs, histories, and values of study populations. Research across the globe, such as that from China and Thailand, has criticized the presumed universality of bioethics itself, demonstrating a need to reevaluate current bioethics codes (Stonington and Ratanakul 2006; Tai 2013). For example, one important issue is the centrality of the individual in most Western bioethics frameworks, which contrasts significantly with collectivist views held in many other societies (Ali et al. 2021). Related is the acceptability of collecting and storing tissue samples in study populations; while collection of placental, hair, blood spot, and saliva samples are considered "minimally invasive" from the standpoint of biomedicine (and human biology, see Snodgrass 2022) and therefore ethically acceptable in most HIC research contexts, some of these sample types may be culturally insensitive in other contexts. Engaging community members in study design is essential to ensure these research methods and frameworks are adapted to the community's culture and context.

2.1 | Implications for Human Biologists Who Use Global Health Survey Data

In the context of rising concerns around transnational research projects—including community member or LMIC researchers' lack of decision-making authority, foreign agenda-setting and financing without community consultation or leadership, failure to deliver benefits to participant communities or address local needs, and research programs that further LMIC dependency on HIC resources—we encourage consideration of our recommendations and applaud existing efforts to decolonize global health and human biology (Chu et al. 2014; Harper and Pratt 2021; Lawrence and Hirsch 2020; Mattison et al. 2023). We recognize that community engagement and academic success are tied: a lack of strong, equitable collaboration undermines the quality and relevance of research and intervention. Ultimately, we argue that bioethics guiding these projects should extend to prevent harm to human communities, ecosystems, and the planet while addressing the diversity of lived human experience, and by broadening our approach to bioethics that inform global health and human biology research, culturally pluralistic bioethics can better help guide modern health initiatives (Chattopadhyay and De Vries 2008).

Our recommendations largely focus on individuals designing and implementing research projects. As human biologists and scientists broadly, we recognize projects, study communities, and research teams are involved in a complex ecosystem of stakeholders. For example, interested parties may include funding and granting agencies, peer reviewers, ethical review boards, conference organizers, and professional and academic institutions (particularly if individuals are beholden to tenure-track professorial obligations). These stakeholders are dynamic, project-dependent, and specific to an individual's field and career stage, and this ecosystem poses structural challenges that may be beyond the scope of our largely individual-focused recommendations. However, our paper invites reflection not only on individual-level work, but also the roles individuals play within this system. Addressing systemic barriers may include participating in ongoing conversations with an institution's Office of Research Compliance, prioritizing these recommendations, and related policies, during service to a university or when serving with professional organizations, submitting suggestions for related symposia at academic conferences, emphasizing the importance of these considerations when serving as academic journal peer reviewers, and/or communicating with granting agency program officers to clarify and negotiate funding limits. We also invite colleagues to engage in regular self-reflection exercises on their current and future projects (e.g., Snodgrass et al. 2024, Manuscript in preparation) and encourage editors in our disciplines—often researchers themselves—to open avenues to publish these pieces alongside research articles. Our paper recognizes our six recommendations may be insufficient to address system-level barriers, but encourages enacting recommendations to the greatest extent possible, given the structural limitations imposed by projects and external actors. In addition, many human biologists who are not involved in study design and management nonetheless utilize data from these types of datasets in their research. Here, we present some suggestions for implementing these recommendations when joining such teams or when utilizing these datasets, while recognizing that the feasibility of these suggestions will vary according to resource availability and research methods.

An ideal approach would prioritize collaboration when establishing both large- and small-scale projects, but also encourage collaboration with communities represented within larger datasets when doing secondary data analyses a posteriori of data collection, despite existing logistical challenges. Communicating with communities whose data resides within a larger dataset could allow researchers to ensure that the work will benefit the group represented in their subset of the data by establishing post-collection collaborations (e.g., in question selection, co-interpretation of data, delivery of findings) regardless of the original project's community engagement practices. Although this approach benefits from existing relationships, outreach to local community members not already involved in community-engaged research is encouraged. Furthermore, researchers should be sensitive to power dynamics between project staff, researchers, and surveyors and communities represented in the dataset, particularly when utilizing data from socially vulnerable communities (e.g., migrant or low caste communities), especially if not involved in original project implementation.

In addition to community collaboration (e.g., researchers approach communities to co-develop questions when doing secondary data analysis on a concluded project), researchers can continue to make efforts to disseminate research findings locally

in formats that are culturally relevant and accessible, such as through dissemination of press releases to the community, townhalls, and culturally relevant, community-led dissemination (see Kojima et al. 2017; Olokunde et al. 2016). Researchers may request information from primary investigators responsible for collecting their chosen global health datasets and open a dialogue about the project's approach to the six recommendations during development and how researchers may further pursue them during data dissemination and secondary analysis. This conversation can raise awareness of these issues, help identify potential collaborators, connect researchers to community members, and encourage consideration of these recommendations in subsequent data collection.

3 | Conclusions

Implementing our six recommendations in ways that respect local communities and values, connect with local stakeholders, offer meaningful infrastructure investments, and integrate with existing belief and care systems in communities are not trivial tasks. For example, one mobile clinic program in India spent six years developing mobile clinic capacity and education programs alongside community members (Kojima et al. 2017). Building these connections includes confronting funding and power structures that currently do not cater to long-term investment, prioritizing easily measurable outputs of study success. Such efforts require prioritization of equitable, rather than extractive or tokenistic, collaboration (Urassa et al. 2021). These collaborations also involve critical self-reflection on researchers' positions in colonial power structures and actively working to reduce power imbalances (McKerracher and Núñez-de la Mora 2021). Anti-colonial approaches, discussion, and agendas—however they are integrated into a research design—should be encouraged in global health and human biology. Decolonizing global health has grown into a field-wide movement, and this approach calls for a shift in practices, organizations, and academic and policy paradigms to combat aforementioned structural inequities in global health and human biology that have developed as legacies of colonialism (Kwete et al. 2022). For example, we encourage authors to include a section discussing their practices and experience enacting these and similar recommendations in scientific community flag journals like the *American Journal of Human Biology*. Our paper contributes to this growing body of work and advocates for integrating our recommendations to support anti-colonial efforts on all scales, but particularly within the scope of collaborations between human biologists bringing their anthropological/biocultural perspectives and global health survey researchers.

The proposed six recommendations are intentionally broad, and adjustments will be necessary across diverse research populations. But we see their flexibility as an essential strength, in that they can be tailored appropriately in various ecologies, ways of organizing power, and biocultural contexts. Research teams may also find that their study requires additional bioethical considerations that straddle the universalist tendencies in bioethics typically favored in global health and the more particularist, cultural-context-dependent tendencies espoused here; discussions and interrogations of these tensions should be encouraged and explored. From our perspective, these recommendations represent the crucial standards on the particularist side of the divide for global health research. The recommendations are likely to evolve as the needs and possibilities of an ever-changing, globalizing world demand. It is our hope that stakeholders in global health research, including human biologists, work to be increasingly attentive of local context, needs and opportunities and to center community in all decision-making, while being mindful of detrimental and colonial power structures and dynamics to the greatest extent possible. Achieving the laudable goals of global health—improving health status and increasing health equity—depends on reorienting toward healthcare service provisioning embedded in participant values and non-institutional communities of care to combat colonial inequities (Biehl and Petryna 2013). Human biologists, both independently and while using global health surveys and methods and/or collaborating on global health survey projects, have a responsibility to continue upholding scientific advancement and integrity while working to better the lives of people and communities in ways that are culturally relevant and long-lasting.

Author Contributions

M.J.G., A.M.D., F.C.M., and J.J.S. conceptualized the current paper. M.J.G. drafted the manuscript. A.M.D., F.C.M., G.U., Z.M.T., L.J.M., A.N.M., and J.J.S. provided critical comments on the manuscript.

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Ethics Statement

The authors have nothing to report.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Endnotes

[1] Throughout this work, we use the term "Western" to describe biomedical and academic traditions that originated in North American and Western European contexts and today permeate cultures across the globe, and as such are no longer geographically limited to the Northern hemisphere. The scientific methods and ways of thinking referred to here as "Western" tend to be embraced as universal in global health discourse, though this focus and legitimization of certain cultures and groups at the expense of others is the result of colonial power discrepancies.

[2] Data ownership is becoming an increasingly salient issue worldwide: Independent of Indigenous or global health contexts, both of which are fraught with unique ethical considerations as aforementioned, parallel concerns have been raised over Artificial Intelligence (A.I.) programs "scraping" unprotected data from the Internet and using scraped

data to train increasingly efficient—and profitable—A.I. programs. Recently, prominent individuals and organizations including Reddit, *The New York Times*, NBC News, and even comedian Sarah Silverman have voiced concerns about unprotected data use for profit.

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