

Building an Interdisciplinary Framework for Global Health Solutions: A Qualitative Study

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ABSTRACT

Introduction: Global health challenges are becoming increasingly complex as they are shaped by the dynamic interaction of biomedical, social, economic, environmental, and political determinants. Persistent health inequities, fragile health systems, and emerging global threats have demonstrated the limitations of conventional discipline-specific approaches. Although interdisciplinary approaches are widely promoted as essential for addressing these challenges, there remains a lack of empirically grounded frameworks that clearly operationalize interdisciplinarity in global health practice.

Methods: This study employed a qualitative research design using an interpretive descriptive approach to explore how interdisciplinary collaboration is understood, practiced, and sustained in global health contexts. Semi-structured, in-depth interviews were conducted with 50 purposively selected stakeholders representing diverse disciplinary backgrounds, including public health, clinical practice, social sciences, economics, environmental health, and policy. Participants were selected based on their professional experience and involvement in interdisciplinary global health initiatives. Data were analyzed using thematic analysis, applying both inductive and deductive coding to identify recurring patterns, relationships, and key themes that informed the development of an interdisciplinary framework.

Results: Six core themes emerged from the analysis. Global health was understood as a complex, multidimensional system that requires integrated approaches across disciplines. Interdisciplinarity was perceived as both a mindset and a practical process, emphasizing shared problem framing, complementary disciplinary contributions, and iterative knowledge integration. Inclusive leadership and supportive institutional and policy environments were identified as critical enablers of effective collaboration, while structural silos, disciplinary hierarchies, and power imbalances remained persistent barriers. These findings demonstrate that interdisciplinarity in global health is a practical necessity rather than a purely conceptual ideal.

Conclusion: This study concludes that strengthening global health outcomes requires the institutionalization of interdisciplinary approaches that integrate diverse forms of knowledge, promote shared problem framing, and address power imbalances across disciplines. The proposed empirically grounded framework offers a practical foundation for advancing integrated, context-sensitive, sustainable, and scalable global health solutions across diverse settings.

Keywords: Global health; Governance; Interdisciplinary framework; Knowledge integration.



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INTRODUCTION

Global health challenges in the twenty-first century are increasingly complex, multidimensional, and transnational [1]. Persistent health inequities, the double burden of communicable and non-communicable diseases, health system fragility, climate change impacts, and global health emergencies such as pandemics have exposed the limitations of conventional, discipline-specific approaches [2]. These challenges are shaped not only by biomedical factors, but also by social, economic, political, environmental, and cultural determinants [3]. Consequently, global health solutions require integrated perspectives that transcend disciplinary boundaries and foster collaboration across sectors. In this context, the development of an interdisciplinary framework has become a critical imperative for advancing effective and sustainable global health interventions [4].

Despite growing recognition of the multifactorial nature of global health problems, many global health initiatives remain fragmented and siloed [5]. Policies and interventions are often designed within isolated disciplinary paradigms, such as medicine, public health, economics, or social sciences, with limited coordination among them [6]. This fragmentation contributes to inefficiencies, duplication of efforts, and suboptimal outcomes, particularly in low- and middle-income countries where health systems face compounded constraints. Furthermore, global health responses frequently prioritize technical solutions while underestimating the social, cultural, and political contexts that shape health behaviors and system performance [7]. The absence of a coherent interdisciplinary framework limits the capacity of stakeholders to address root causes of health disparities and to design solutions that are context-sensitive, inclusive, and resilient [8].

Existing literature acknowledges the importance of interdisciplinarity in global health; however, empirical studies that systematically explore how interdisciplinary approaches are conceptualized, operationalized, and experienced by global health stakeholders remain limited [9]. Most studies focus on theoretical advocacy for interdisciplinarity or evaluate specific cross-sectoral programs without articulating an overarching framework that integrates diverse disciplinary perspectives. Moreover, there is a paucity of qualitative research that captures the lived experiences, perceptions, and challenges faced by practitioners, policymakers, and researchers engaged in interdisciplinary global health work. This gap constrains the development of practical models that can guide interdisciplinary collaboration and inform policy and practice across diverse global health contexts [10].

This study offers novelty by developing an empirically grounded interdisciplinary framework for global health solutions based on qualitative insights from key stakeholders. Unlike prior studies that rely predominantly on conceptual or normative arguments, this research synthesizes experiential knowledge to identify core components, enabling conditions, and barriers to interdisciplinary collaboration. The proposed framework integrates biomedical, social, economic, environmental, and governance perspectives, emphasizing their interdependence in addressing complex health challenges. By foregrounding stakeholder voices, this study contributes a practice-oriented and contextually informed model that advances the operationalization of interdisciplinarity in global health.

Literature Review

The concept of global health has evolved from a focus on international health and disease control toward a broader understanding of health as a global public good influenced by transnational determinants. Scholars have emphasized that global health problems are “wicked problems,” characterized by complexity, uncertainty, and interconnectivity, which cannot be resolved through single-discipline solutions. Interdisciplinary approaches are therefore increasingly advocated as essential for addressing the social determinants of health, strengthening health systems, and promoting equity [11].

Interdisciplinarity in global health is commonly defined as the integration of knowledge, methods, and perspectives from multiple disciplines to address complex health issues. Studies highlight that interdisciplinary collaboration enhances problem-solving capacity, fosters innovation, and improves the relevance of interventions. For example, integrating epidemiology with social sciences has been shown to improve understanding of health behaviors, while collaboration between public health and environmental sciences has strengthened responses to climate-related health risks [12].

However, the literature also documents significant challenges to interdisciplinary work. Structural barriers include disciplinary silos within academic institutions, misaligned funding mechanisms, and differing epistemological assumptions across fields [13]. Cultural barriers, such as power imbalances and divergent professional languages, further complicate collaboration. Additionally, the absence of shared frameworks and evaluation metrics often undermines the sustainability and scalability of interdisciplinary initiatives.

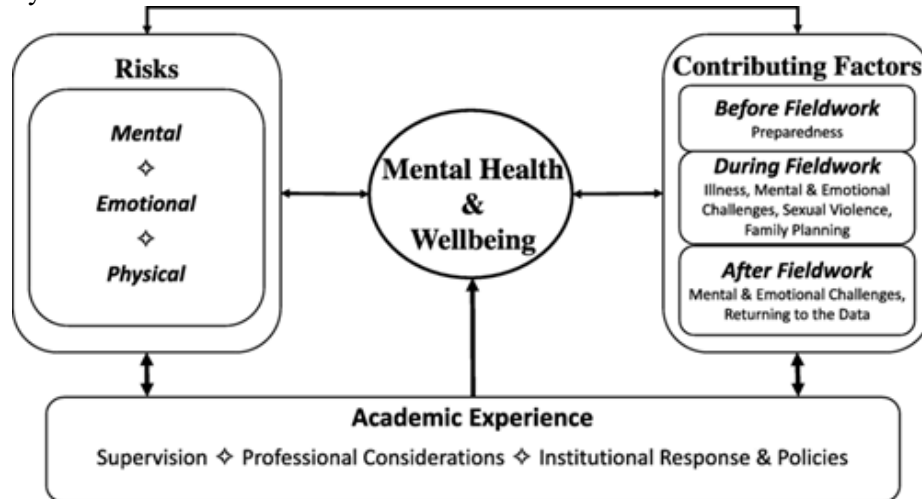


Figure 1. Visualize the Literature Review in the form of conceptual images, which summarize key thought flows, key findings of the literature, and position your research in the development of an interdisciplinary global health framework.

This figure synthesizes key global health literature by mapping major disciplinary perspectives, identified gaps, and the integrative role of interdisciplinarity. It visually positions the present study within existing scholarship, highlighting how qualitative insights contribute to the development of a practical interdisciplinary framework for global health solutions. Recent global health scholarship calls for frameworks that move beyond ad hoc collaboration toward systematic integration. Such frameworks should articulate shared goals, clarify roles and responsibilities, and establish mechanisms for communication, governance, and knowledge translation. Qualitative research is particularly well-suited to advancing this agenda, as it enables in-depth exploration of processes, meanings, and contextual factors that shape interdisciplinary practice. Nevertheless, qualitative studies that explicitly aim to construct interdisciplinary frameworks in global health remain scarce. In response to these gaps, this qualitative study seeks to build an interdisciplinary framework for global health solutions by examining stakeholder perspectives on collaboration across disciplines and sectors. By synthesizing empirical insights with existing theoretical foundations, the study aims to contribute to the advancement of integrated, equitable, and sustainable global health strategies.

MATERIALS AND METHODS

Study Design

This study employed a qualitative research design using an interpretive descriptive approach to explore how interdisciplinary collaboration is understood, practiced, and operationalized in global health contexts. A qualitative design was selected to capture in-depth perspectives, experiences, and contextual insights that cannot be adequately examined through quantitative methods alone. This approach is particularly suitable for developing conceptual frameworks grounded in stakeholder experiences and for addressing complex, multifactorial global health challenges.

Study Setting and Context

The study was conducted within diverse global health practice and policy contexts, encompassing academic, governmental, non-governmental, and international development environments. Participants

were drawn from institutions engaged in global health research, program implementation, and policy formulation. The study context was intentionally interdisciplinary, reflecting interactions among health, social, environmental, economic, and governance sectors involved in global health decision-making.

Participants and Sampling

Participants were selected using purposive sampling to ensure representation from multiple disciplinary backgrounds relevant to global health. Eligibility criteria included: (1) a minimum of five years of professional experience in global health-related work; (2) active involvement in interdisciplinary or cross-sectoral initiatives; and (3) willingness to participate in in-depth interviews. To enhance diversity of perspectives, maximum variation sampling was applied across disciplines, institutional roles, and geographic settings. A total of 50 participants were recruited, including public health professionals, clinicians, social scientists, health economists, environmental health experts, and policy practitioners.

Data Collection

Data were collected through semi-structured, in-depth interviews, conducted between specified study periods. An interview guide was developed based on a preliminary literature review and refined through expert consultation. Key domains explored included: conceptualizations of interdisciplinarity in global health, experiences with interdisciplinary collaboration, perceived benefits and challenges, enabling institutional and policy factors, and recommendations for strengthening interdisciplinary frameworks. Interviews were conducted in English, either face-to-face or via secure online platforms, with an average duration of 45–60 minutes. All interviews were audio-recorded with participant consent and transcribed verbatim for analysis.

Data Analysis

Data analysis followed a thematic analysis approach, guided by established qualitative analytic procedures. Transcripts were read repeatedly to achieve familiarization, followed by systematic coding using both inductive and deductive strategies. Initial codes were generated to reflect emerging concepts, while deductive codes were informed by interdisciplinary theory and global health systems literature. Codes were then grouped into categories and refined into overarching themes that captured patterns across participant narratives. Analytical rigor was enhanced through iterative team discussions, reflexive memo writing, and constant comparison across data sources. The final themes informed the construction of an interdisciplinary framework for global health solutions.

Trustworthiness and Rigor

To ensure methodological rigor, the study applied criteria of credibility, dependability, confirmability, and transferability. Credibility was strengthened through prolonged engagement with the data and peer debriefing among the research team. Dependability was supported by maintaining a transparent audit trail documenting analytic decisions. Confirmability was addressed through reflexive practices to minimize researcher bias. Transferability was facilitated by providing rich descriptions of study context and participant characteristics, enabling readers to assess applicability to other settings.

Ethical Considerations

Ethical approval for the study was obtained from an independent Institutional Review Board prior to data collection. All participants provided informed consent before participation. Confidentiality and anonymity were strictly maintained by de-identifying transcripts and securely storing data in password-protected files accessible only to the research team. Participants were informed of their right to withdraw from the study at any time without consequence.

RESULTS

This section presents the key findings derived from the thematic analysis of in-depth interviews with interdisciplinary global health stakeholders. The results are organized around major themes that reflect participants' perspectives, experiences, and insights into interdisciplinary collaboration. These themes collectively inform the development of an empirically grounded framework for advancing integrated and sustainable global health solutions.

Table 1. Interview Guide: Themes and Essential Questions

No.	Interview Theme	Objective	Essential Questions
1	Global Health Perspectives	To explore participants' understanding of global health	How do you define global health within your professional or research context?
2	Understanding Interdisciplinarity	To identify how interdisciplinarity is conceptualized	What does an interdisciplinary approach mean in global health practice?
3	Disciplinary Contributions	To examine the role of different disciplines	How does your disciplinary background contribute to addressing global health challenges?
4	Experiences of Collaboration	To capture real-world interdisciplinary experiences	Can you describe your experiences working in interdisciplinary global health initiatives?
5	Value of Interdisciplinary Approaches	To assess the perceived benefits of interdisciplinarity	What added value does interdisciplinarity bring to global health solutions?
6	Barriers and Challenges	To identify obstacles to effective collaboration	What challenges or barriers have you encountered in interdisciplinary work?
7	Institutional and Policy Context	To analyze institutional and policy influences	How do institutional structures or policies support or hinder interdisciplinary collaboration?
8	Communication and Power Dynamics	To explore interaction and power relations	How do communication patterns or power dynamics affect interdisciplinary decision-making?
9	Knowledge Integration	To understand mechanisms of integration	How is knowledge from different disciplines integrated into global health actions?
10	Leadership and Governance	To identify enabling leadership models	What forms of leadership or governance facilitate successful interdisciplinary collaboration?
11	Sustainability and Scalability	To assess long-term viability	How can interdisciplinary global health initiatives be sustained and scaled?
12	Framework Development	To define key framework components	What core elements should be included in an interdisciplinary global health framework?
13	Strategic Recommendations	To generate actionable guidance	What recommendations would you propose to strengthen interdisciplinary global health solutions?

The interview themes collectively illustrate a coherent understanding of interdisciplinary global health practice. Participants conceptualized global health as a multidimensional field shaped by biomedical, social, economic, political, and environmental determinants, rather than a narrowly biomedical domain. Interdisciplinarity was consistently understood as genuine integration across disciplines, emphasizing shared problem framing over parallel collaboration. Participants highlighted the complementary contributions of diverse disciplines, noting that biomedical and public health expertise provide essential foundations, while social, economic, environmental, and policy perspectives are critical for sustainability and real-world impact. Experiences of interdisciplinary collaboration revealed both its added value such as enhanced innovation, contextual relevance, and problem-solving capacity and persistent barriers, including institutional silos, disciplinary hierarchies, and epistemological differences. Institutional and policy contexts emerged as influential factors that either enabled or constrained collaboration, while communication patterns and power dynamics shaped decision-making and knowledge exchange. Knowledge integration was described as an iterative process requiring continuous negotiation and shared analytical frameworks. Effective leadership and governance were identified as key enablers of successful collaboration, particularly when leaders acted as boundary-spanners across disciplines. Finally, participants emphasized that sustainability and scalability depend

on institutionalizing interdisciplinarity within organizational structures and policies, and they proposed strategic recommendations to inform the development of a practical interdisciplinary framework for global health solutions.

Table 2. Themes, Subthemes, and Illustrative Participant Quotations

Theme	Subtheme	Synthesized Finding	Illustrative Participant Quotation
Theme 1. Global Health as a Complex, Multidimensional System	1.1 Multideterminant Nature of Global Health	Global health is shaped by interconnected biomedical, social, economic, environmental, and political determinants.	<i>“Global health is never just about diseases; it is about how social structures, economies, and environments interact to shape health outcomes.”</i>
	1.2 Contextual and Transnational Dimensions	Global health challenges transcend national boundaries while remaining highly context-specific.	<i>“What works in one country cannot simply be copied elsewhere without understanding the local context.”</i>
Theme 2. Interdisciplinarity as an Integrative Mindset and Practice	2.1 Beyond Parallel Collaboration	Interdisciplinarity involves genuine integration rather than side-by-side disciplinary work.	<i>“Working together does not mean sitting at the same table; it means thinking together from the start.”</i>
	2.2 Shared Problem Framing	Collective problem definition is a prerequisite for effective interdisciplinary integration.	<i>“Once we agree on how to define the problem, solutions from different disciplines start to align.”</i>
Theme 3. Complementary Disciplinary Contributions to Global Health Solutions	3.1 Biomedical and Public Health Foundations	Biomedical and public health expertise are essential but insufficient when applied alone.	<i>“Epidemiology tells us where the problem is, but it does not explain why people behave the way they do.”</i>
	3.2 Social, Economic, Environmental, and Policy Perspectives	Non-biomedical disciplines are critical for sustainability, relevance, and long-term impact.	<i>“Without economic and policy perspectives, interventions rarely survive beyond pilot projects.”</i>
Theme 4. Enablers and Barriers to Interdisciplinary Collaboration	4.1 Enabling Conditions	Inclusive leadership, trust, and institutional support facilitate effective collaboration.	<i>“When leadership values all disciplines equally, collaboration becomes much easier.”</i>
	4.2 Structural and Cultural Barriers	Disciplinary silos, power imbalances, and hierarchies hinder interdisciplinary work.	<i>“Biomedical voices often dominate discussions, even when social issues are central.”</i>
Theme 5. Knowledge Integration and Communication Processes	5.1 Iterative Knowledge Integration	Knowledge integration is a continuous and negotiated process over time.	<i>“Integration is not a final product; it evolves as the project develops.”</i>
	5.2 Communication and Power Dynamics	Transparent communication is essential to manage power relations and foster collaboration.	<i>“Open communication helps reduce misunderstandings and disciplinary tensions.”</i>
Theme 6. Leadership, Governance, and Sustainability of	6.1 Boundary-Spanning Leadership and Governance	Effective leaders bridge disciplines and facilitate mutual understanding.	<i>“Good leaders act as translators between disciplines.”</i>

Interdisciplinary Approaches	6.2 Institutionalization and Scalability	Sustainability depends on embedding interdisciplinarity within institutional and policy frameworks.	<i>“Interdisciplinary work survives only when institutions formally support it.”</i>
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Table 2. Synthesizes the qualitative findings by demonstrating that effective global health solutions require an integrated, interdisciplinary approach grounded in an understanding of health as a complex and multidimensional system. The themes and subthemes highlight that meaningful interdisciplinarity goes beyond parallel collaboration, relying instead on shared problem framing, complementary disciplinary contributions, and iterative knowledge integration. The findings further underscore the critical roles of inclusive leadership, supportive institutional and policy environments, and transparent communication in enabling collaboration, while also revealing persistent structural and cultural barriers that must be addressed. Collectively, these insights inform the development of an empirically grounded interdisciplinary framework that can guide sustainable, scalable, and context-sensitive global health solutions.

DISCUSSION

This study provides empirical insight into how interdisciplinary approaches are understood, enacted, and sustained in global health practice. Building on the thematic findings, the discussion situates these results within existing global health scholarship and highlights their implications for theory, practice, and policy. Overall, the findings reinforce the argument that global health challenges are inherently complex and cannot be effectively addressed through single-discipline approaches, while also extending the literature by clarifying how interdisciplinarity can be operationalized in practice.

First, participants’ conceptualization of global health as a complex, multidimensional system aligns with established frameworks emphasizing the social determinants of health and systems thinking [14]. The recognition that biomedical factors are inseparable from social, economic, environmental, and political contexts echoes prior global health literature that frames health inequities as products of structural conditions rather than isolated clinical problems [15]. However, this study adds depth by demonstrating that such multidimensional understanding is not merely theoretical but is actively held by practitioners across sectors [16]. This shared conceptualization provides a critical foundation for interdisciplinary collaboration, as it creates a common rationale for integrating diverse forms of expertise [17].

Second, the findings advance current debates on interdisciplinarity by emphasizing its nature as both an integrative mindset and a practical process. While previous studies often advocate interdisciplinarity normatively, the present findings show that participants distinguish clearly between superficial collaboration and genuine integration [18]. Shared problem framing emerged as a central mechanism through which interdisciplinarity becomes meaningful. This supports and extends existing theories suggesting that collaboration is most effective when disciplines co-construct the definition of the problem, rather than contributing solutions to pre-defined agendas. Such shared framing helps mitigate epistemological tensions and enables alignment across disciplines [19].

Third, the theme of complementary disciplinary contributions underscores the limitations of biomedical dominance in global health. Participants acknowledged the essential role of biomedical and public health expertise in identifying disease patterns and interventions, yet consistently emphasized that these perspectives alone are insufficient [20]. Social sciences, economics, environmental studies, and policy analysis were viewed as indispensable for understanding behavior, ensuring sustainability, and translating evidence into action [21]. This finding resonates with calls in the literature to rebalance global health knowledge production, but it also highlights persistent challenges in achieving epistemic equity across disciplines. The perceived dominance of biomedical voices suggests that power asymmetries remain a structural issue in interdisciplinary work [22].

Fourth, the identification of enablers and barriers provides practical insight into why

interdisciplinary initiatives succeed or fail. Consistent with previous research, institutional silos, rigid funding mechanisms, and disciplinary hierarchies were identified as major obstacles [23]. Importantly, this study highlights leadership and organizational culture as modifiable factors that can either reinforce or dismantle these barriers [24]. Inclusive leadership that values diverse forms of expertise was repeatedly associated with successful collaboration, suggesting that interpersonal and organizational dynamics are as critical as technical competence in interdisciplinary global health work [25].

Fifth, the findings related to knowledge integration and communication processes contribute to a more nuanced understanding of interdisciplinarity as an iterative and negotiated practice [26]. Rather than viewing integration as a final outcome, participants described it as an ongoing process requiring continuous dialogue, reflexivity, and adjustment [27]. This perspective aligns with qualitative and systems-oriented literature, which emphasizes learning and adaptation in complex environments [28]. The explicit attention to communication and power dynamics further strengthens this contribution, as it highlights that integration is not purely technical but deeply social and political [29].

Finally, the themes of leadership, governance, sustainability, and scalability have important implications for the development of interdisciplinary frameworks. Participants emphasized that interdisciplinarity cannot rely solely on individual commitment or project-based initiatives. Instead, it must be institutionalized through supportive policies, governance structures, and incentive systems [30]. This finding extends existing framework-based literature by grounding these recommendations in empirical experience. Sustainability and scalability were consistently linked to long-term policy alignment, capacity building, and formal recognition of interdisciplinary work within institutions [31].

Taken together, these findings contribute to global health scholarship in several ways. The study provides empirical evidence supporting the necessity of interdisciplinary approaches, clarifies key processes that enable integration, and identifies structural conditions required for sustainability. Importantly, it bridges the gap between conceptual advocacy and practical implementation by foregrounding stakeholder experiences. The interdisciplinary framework informed by these findings offers a practice-oriented model that can guide researchers, practitioners, and policymakers in designing more integrated, equitable, and context-sensitive global health solutions. Future research should build on these findings by testing and refining the proposed framework across different global health settings and by examining how interdisciplinary capacity can be strengthened at institutional and policy levels. By doing so, global health can move closer to realizing the full potential of interdisciplinarity as a core strategy for addressing complex health challenges.

CONCLUSIONS

This study concludes that effective global health solutions require a genuinely interdisciplinary approach grounded in an understanding of health as a complex and multidimensional system. The findings demonstrate that interdisciplinarity is most effective when it moves beyond parallel collaboration toward integrated problem framing, complementary disciplinary contributions, and iterative knowledge integration. Inclusive leadership, supportive institutional and policy environments, and transparent communication emerge as critical enablers, while structural silos and power imbalances remain persistent barriers.

Based on these conclusions, it is recommended that global health institutions and policymakers formally institutionalize interdisciplinary approaches through supportive governance structures, flexible funding mechanisms, and capacity-building initiatives. Future global health programs should prioritize shared problem framing from the outset, promote epistemic equity across disciplines, and invest in leadership development that fosters boundary-spanning collaboration to ensure sustainability and scalability of interdisciplinary global health solutions.

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Authors' contributions

All authors contributed significantly to the development and completion of this research study.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this research. No financial, professional, or personal relationships have influenced the outcomes or interpretations presented in this study.

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