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Science Communication as a Bridge Between Health Research and Society in Kenya

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Abstract: ***Science communication the translation of health research findings into formats accessible to non-specialist audiences is critical for ensuring that research informs policy, practice, and community health outcomes. In Kenya, public trust in scientists is high; however, research findings often remain confined to academic and institutional spaces. This desktop review synthesizes evidence from 2019-2025 on science communication within Kenya's health research landscape, identifies existing gaps, and proposes a conceptual framework to strengthen the bridge between research and society. Literature from academic databases, institutional websites, and grey sources was reviewed and thematically analyzed. Findings highlight key enablers, including high public trust, emerging institutional collaborations, and digital engagement, alongside persistent barriers such as the scientist–media divide, language and accessibility challenges, weak policy linkages, and limited evaluation of communication efforts. The proposed framework emphasizes early stakeholder engagement, tailored communication strategies, capacity building, multi-platform dissemination, and systematic monitoring. Strengthening science communication in Kenya requires institutional commitment, sustainable funding, and active community co-creation to ensure that health research meaningfully informs decision-making and improves public well-being. Additionally, this paper introduces the BAYA Model of Science Communication as a practical approach to simplifying research messages, aligning them with audience values, yielding meaningful engagement, and activating behavior change within Kenya's socio-cultural context.***

Keywords: Science communication, Health research, public engagement, Knowledge translation, Kenya

1. Background

Science communication broadly refers to the exchange of information on scientific topics and the relationship between science and society (PCST Network, 2019). It encompasses any activity intentionally designed to convey scientific knowledge to a wider audience (PCST Network, 2019). Although commonly employed across disciplines, the concept remains debated with scholars noting that "science communication" is often invoked without a consistent or precise definition (Burns, O'Connor, & Stocklmayer, 2003). In their influential paper, *Science Communication: A Contemporary Definition*, Burns et al. (2003) reviewed prior frameworks and proposed a model that situates science communication within broader constructs such as public awareness, understanding, and appreciation of science. They describe it as "the use of appropriate skills, media, activities, and dialogue to produce one or more personal responses to science," summarizing outcomes through the AEIOU model: Awareness, Enjoyment, Interest, Opinion-forming, and Understanding. This outcomes-oriented approach has since become a key framework for evaluating science communication effectiveness (Metcalfe, 2019; Davies & Horst, 2016), emphasizing both the methods of communication and their impact on audiences.

Building on such outcome-oriented communication frameworks, the BAYA Model (Break Down, Align, Yield, Activate) offers a simplified, context-sensitive approach to tailoring research messages for non-specialist audiences (Baya, S. Y.2025), emphasizing breaking down scientific findings into clear and relatable language, aligning communication with audience values and cultural realities, encouraging two-way engagement, and activating desired policy or behavior outcomes, making it particularly relevant in Kenyan health communication settings.

In the context of health research, effective science communication is crucial to ensure that findings move beyond academic publications and inform policy, practice, and community health behaviors. When research is restricted to academic institutions and does not engage with communities, policymakers, or practitioners, it fails to achieve its intended societal impact. conversely, when findings are translated into accessible formats for policymakers, practitioners, and the public, they can be applied in real-world contexts (Riera et al., 2023). By making complex evidence understandable, usable, and relevant, science communication serves as the bridge between scientific discovery and practical outcomes (Eyler, 2016).

In Kenya, the importance of this bridge is increasingly recognized. The country ranks among the top globally in public trust in scientists, with surveys indicating high perceptions of competence, honesty, and benevolence (Cologna & Siegrist, 2025; Muchangi, 2025; Edelman, 2024). Despite this strong foundation of trust, gaps persist in translating research into societal benefit. Much health research conducted in Kenyan institutions remains underutilized in policy development, and communication to non-specialist audiences is limited (Kenya National Commission for UNESCO, 2024). Scientists often perceive the public as distant or "other, " resulting in weak engagement strategies (DDRN, 2023). There is increasing recognition that localized narratives, collaboration between scientists, media, and communities, and capacity building are essential to enhance the societal impact of research (Media Council of Kenya, 2023; ILRI, 2024).

Bridging these gaps requires deliberate, structured science communication strategies that consider Kenya's multilingual, digitally diverse, and socio-cultural context. Such approaches can ensure that high public trust in science translates into

informed public discourse, evidence-based policy, and improved health outcomes.

1.1 Research Objectives

This study aims to:

1) Examine the current state of science communication practices in Kenya's health research sector.
2) Identify key enablers and barriers affecting the translation of health research into societal and policy impact.
3) Explore how socio-cultural, linguistic, and institutional factors influence science communication effectiveness in Kenya.
4) Propose a conceptual framework for strengthening the bridge between health research, policy, and communities.
5) Recommend strategies for sustainable, context-sensitive science communication that enhances public engagement and evidence-based decision-making.

2. Theoretical Framework

Effective science communication in health research requires understanding both how information is transmitted and how it is adopted by diverse audiences. To provide a conceptual basis for this study, three complementary theoretical lenses were applied: the AEIOU model (Burns, O'Connor, & Stocklmayer, 2003), the Knowledge-to-Action (KTA) framework (Graham et al., 2006), and Rogers' Diffusion of Innovations (DOI) theory (Rogers, 2003). Together, these frameworks inform the design of strategies to translate health research into meaningful societal impact in Kenya.

2.1 AEIOU Model of Science Communication

The AEIOU model provides an outcomes-focused approach to understanding audience responses to scientific communication. Burns et al. (2003) define science communication as "the use of appropriate skills, media, activities, and dialogue to produce one or more personal responses to science, " operationalized through five interrelated outcomes: Awareness, Enjoyment, Interest, Opinion-forming, and Understanding. By focusing on how individuals engage with scientific information, AEIOU highlights the importance of tailoring messages to audience needs, cultural contexts, and comprehension levels. In Kenya, where public trust in scientists is high but literacy and language diversity vary across regions, applying AEIOU ensures that communication strategies elicit meaningful cognitive and behavioral responses.

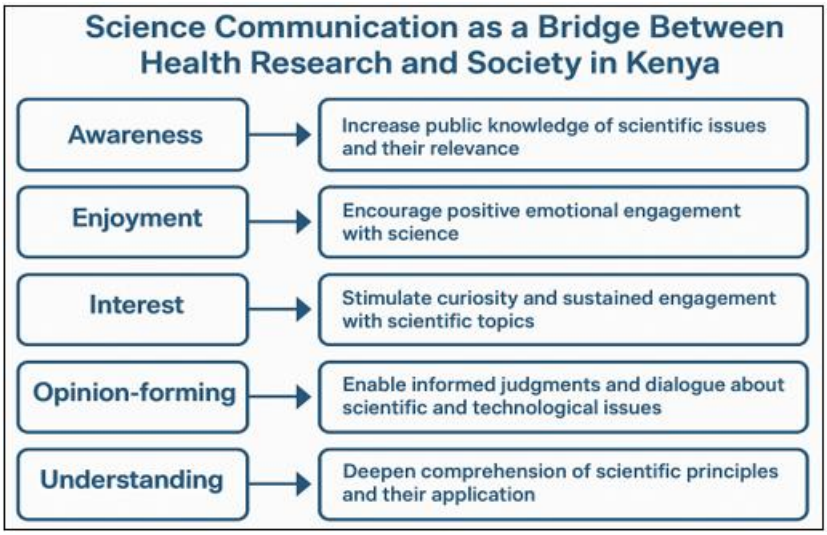

Figure 1

2.2 Knowledge-to-Action Framework

The Knowledge-to-Action (KTA) framework emphasizes the process of translating research evidence into actionable outcomes (Graham et al., 2006). KTA conceptualizes knowledge translation as a cycle encompassing knowledge creation, synthesis, dissemination, implementation, and evaluation. For Kenyan health research, the KTA framework provides a structured approach to link scientific findings with policy, clinical practice, and community-level interventions. It underscores the importance of engaging stakeholders—including policymakers, practitioners, media professionals, and community members—throughout the research process, not solely at dissemination.

2.3 Diffusion of Innovations Theory

Rogers' (2003) Diffusion of Innovations (DOI) theory complements AEIOU and KTA by explaining how new ideas, practices, or technologies spread within social systems. The theory identifies key determinants of adoption:

- **Innovation characteristics** (relative advantage, compatibility, simplicity, trialability, observability)
- **Communication channels** (mass media, interpersonal networks, digital platforms)
- **Social system factors** (norms, opinion leaders, social networks)
- **Time dynamics** (adoption by innovators, early adopters, majority groups, laggards)

In the Kenyan context, DOI helps explain why certain health interventions or research findings are rapidly adopted (e. g., community COVID-19 mitigation practices) while others remain underutilized. The theory highlights the need for culturally appropriate communication channels, trusted messengers, and the sequencing of engagement to maximize adoption across diverse populations.

2.4 Integrated Framework Application

Together, AEIOU, KTA, and DOI offer a multi-level lens for designing and evaluating science communication initiatives in Kenya. AEIOU focuses on **individual audience responses**, KTA provides a **systematic pathway from evidence to action**, and DOI explains **adoption dynamics within communities and institutions**. This integrated theoretical framework guided the study's desktop review, helping to identify both enablers (e. g., high public trust, institutional partnerships) and barriers (e. g., scientist–media gaps, linguistic and cultural diversity, limited evaluation mechanisms) to effective translation of health research into societal impact.

2.5 BAYA Model of Science Communication

The BAYA Model (Break Down, Align, Yield, Activate) complements AEIOU, KTA, and Diffusion of Innovations by providing a practical, user-friendly structure for communicating health research findings.

- **Break Down** refers to simplifying complex research into clear, non-technical messages.
- **Align** emphasizes adapting messages to cultural norms, language preferences, and audience values.
- **Yield** focuses on fostering dialogue and shared meaning to ensure that communication produces relevant understanding.
- **Activate** involves translating understanding into action, supporting behavior change, policy uptake, or community participation.

In Kenya, where linguistic diversity and cultural context strongly influence message reception, the BAYA Model operationalizes research translation into forms that audiences can understand, trust, and act upon.

BAYA Model of Science Communication

Break Down → Align → Yield Engagement → Act for Impact

Table 1

Step	Meaning	Goal	Example in Practice
B-Break Down the Science	Remove jargon, use simple everyday words	Make the message understandable	"Some germs are learning to resist medicine. "
A-Align to the Audience	Speak differently to different groups	Make the message relevant	Policymakers care about cost, communities care about family safety
Y- Yield Meaningful Engagement	Create dialogue, listen, ask questions	Build trust & shared understanding	"What have you heard about this vaccine?"
A – Act for Impact	Guide the next step after communication	Lead to real change	Vaccination, policy adoption, behavior shift, shared messaging

How the BAYA Model Connects to AEIOU, KTA, and DOI

Table 2

Framework	Simple Meaning	Link to BAYA
AEIOU Model	Science communication should create Awareness, Enjoyment, Interest, Opinions, and Understanding	BAYA helps achieve these outcomes naturally
KTA (Knowledge-to-Action) Cycle	Turning research evidence into real-world action	BAYA's final *Act for Impact* aligns directly with KTA implementation
DOI (Diffusion of Innovation)	How new ideas spread in communities	BAYA's *Align* + *Engagement* supports adoption and acceptance

Therefore, the BAYA Model is the *practical communication engine* inside those larger frameworks.

3. Methodology

3.1 Study Design

This study employed a desktop review methodology to systematically map, synthesize, and analyze existing literature and documented initiatives related to science communication in health research in Kenya. A desktop review is particularly suited for capturing a broad range of both peer-reviewed and grey literature, including institutional reports, policy briefs, and media releases (Grant & Booth, 2009). The objectives were to identify enablers and barriers in science-to-society translation, assess gaps in practice and policy, and inform the development of a conceptual framework for effective health research communication in the Kenyan context.

3.2 Search Strategy

A comprehensive literature search was conducted across academic databases (PubMed, Scopus, Google Scholar) and institutional repositories, including the Kenya Medical Research Institute (KEMRI), the Media Council of Kenya (MCK), and TCC Africa. Grey literature, encompassing policy briefs, media releases, workshop reports, and institutional communications, was also included to capture practical and applied insights.

Search terms were structured around the following combinations: *"science communication"*, *"health research translation"*, *"science journalism Kenya"*, *"public trust in scientists Kenya"*, and *"media health research Kenya"*. Boolean operators and truncation were applied to maximize retrieval of relevant studies and documents. The review prioritized sources published between 2019 and 2025 to capture contemporary developments in digital communication, science engagement, and policy dynamics within Kenya. This timeframe also reflects shifts in public engagement practices and trust in science precipitated by the COVID-19 pandemic (WHO, 2021; Muchangi, 2025) and aligns with broader global trends in digital dissemination and evidence-informed policymaking (OECD, 2020; OECD, 2023; Guo, Zawawi, & Kamarudin, 2024).

3.3 Inclusion and Exclusion Criteria

Materials were included if they addressed one or more of the following:

- Science communication or research translation within the Kenyan health sector;
- Public trust in science and scientists in Kenya;
- Media–scientist interactions in the context of health research;
- Training, capacity-building, or institutional initiatives in science communication.

Excluded materials comprised:

- Works unrelated to Kenya or health research;
- Purely theoretical pieces without applied relevance;
- Duplicates or reports lacking novel insights.

Both qualitative and quantitative evidence was considered to ensure a comprehensive assessment of approaches, challenges, and outcomes.

3.4 Data Extraction and Analysis

From each source, relevant data were systematically extracted, including:

- Characteristics and objectives of science communication initiatives;
- Target audiences and stakeholders;
- Modes and channels of dissemination;
- Reported outcomes and impact;
- Enablers and barriers;
- Contextual or institutional factors influencing effectiveness.

Extracted data were coded and organized thematically to enable comparative analysis across initiatives. A narrative synthesis approach was applied to integrate findings across diverse sources, identifying patterns, contrasts, and recurring themes within the Kenyan context and in comparison to global practices (Popay et al., 2006).

To enhance methodological rigor, the thematic coding process underwent iterative validation. An initial coding framework was developed inductively from a subset of high-relevance documents and subsequently refined to ensure conceptual clarity and consistency with the study objectives. Codes and emerging themes were cross-checked across multiple sources to verify recurrence and reduce interpretive bias. Any discrepancies were resolved through re-examination of the source material and refinement of the coding structure. This approach allowed for the development of a conceptual framework that reflects both evidence-based insights and locally contextualized needs. Therefore, this iterative validation process ensured that the final thematic categories accurately reflected the evidence base and supported the development of a contextually grounded conceptual framework.

4. Conceptual Framework

This paper is anchored on the conceptual framework illustrated in Figure 1, which positions **science communication** as a vital bridge between **health research** and **society** in Kenya. The framework proposes that the effectiveness of science communication strategies (independent variables) in influencing the societal uptake and impact of health research (dependent variables) is moderated by Kenya's unique socio-cultural and institutional context.

Science communication acts as a *bridge* linking **health research** and **society**, enabling evidence-based understanding, participation, and decision-making in Kenya's health landscape.

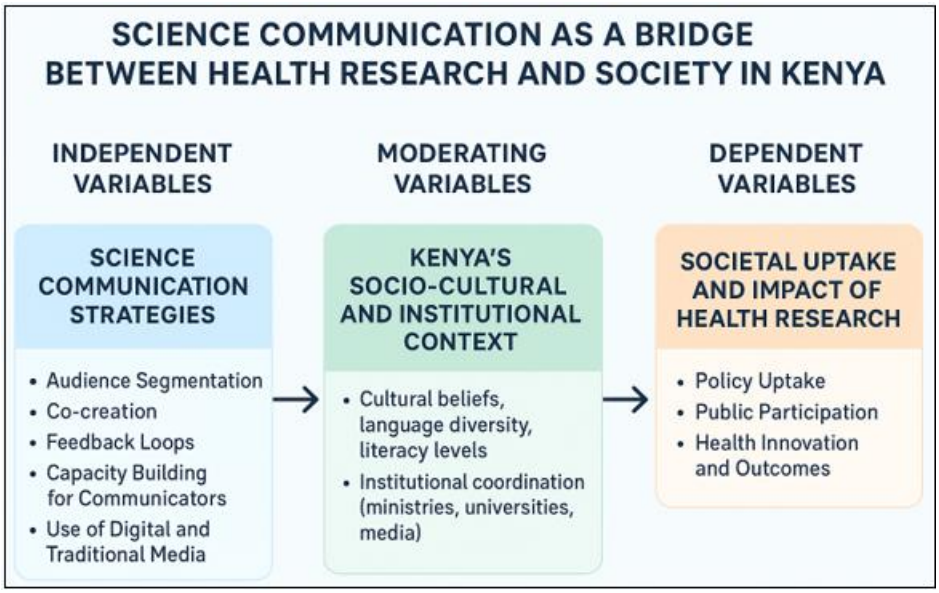

Figure 2

4.1 Independent Variables: Science Communication Strategies

Science communication strategies represent the deliberate approaches employed by researchers, communicators, and institutions to enhance the accessibility, understanding, and use of health research findings among diverse societal groups. Effective science communication fosters evidence-informed decision-making, builds trust in science, and promotes public engagement (Riera et al., 2023).

4.1.1 Audience Segmentation

Audience segmentation involves tailoring communication content and delivery methods to align with the needs, literacy levels, and interests of specific audience groups, thereby enhancing message relevance and comprehension. This approach enables communicators to reach subpopulations more effectively and to address disparities in access to scientific information (What Did the Pandemic Teach Us, 2022). In health contexts, segmentation based on demographic, behavioral, and psychographic factors improves message resonance and comprehension across diverse audiences (Ilomata, 2023).

4.1.2 Co-creation

Co-creation refers to the collaborative process of engaging stakeholders including community members, policymakers, and health practitioners in the design, implementation, and dissemination of research and communication activities. Such engagement promotes mutual trust, shared ownership, and increased contextual relevance of research outputs (Mbachu et al., 2020). Evidence from implementation research demonstrates that co-producing communication strategies enhances community acceptance and the uptake of health interventions (King et al., 2024).

4.1.3 Feedback Loops (Two-Way Communication)

Establishing mechanisms for two-way communication, or feedback loops, allows researchers to receive input from target audiences, clarify misconceptions, and adapt messages for improved understanding and action. These iterative exchanges transform communication from a unidirectional to a dialogic process, reinforcing learning and trust (Hounkpevi et al., 2019). Responsive feedback loops are particularly critical in digital communication environments and participatory health programs, where continuous adaptation based on audience responses ensures sustained engagement (Bamberger et al., 2019).

4.1.4 Capacity Building for Communicators

Capacity building aims to equip scientists, journalists, and health communicators with the knowledge and skills necessary to translate complex scientific information into accessible and culturally sensitive messages. Training initiatives have been shown to improve communication accuracy and public trust in science (Besley et al., 2016). Recent reviews highlight the value of multifaceted strategies including education, mentorship, and collaborative learning to strengthen communication competencies across sectors (King et al., 2024; Rowbotham et al., 2023).

4.1.5 Use of Digital and Traditional Media

Leveraging both digital and traditional media platforms extends the reach of scientific messages and enhances inclusivity, particularly in underserved or rural communities. Digital platforms such as social media facilitate rapid information exchange, while traditional media channels (e. g., radio, print, and television) remain vital for populations with limited internet access (Fontaine et al., 2019). A multi-channel approach ensures that diverse audiences receive timely, accurate, and contextually appropriate health information (Riera et al., 2023).

Combined, these approaches form a comprehensive framework for improving public engagement with science and for ensuring that research evidence is effectively translated into policy and practice.

4.2 Key Elements and Pathways of Science Communication in Health Research

This section explains **how** communication actually happens (modes) and **why** it matters (outcomes). Science communication in health research encompasses a range of

pathways and mechanisms that facilitate the dissemination and uptake of scientific knowledge by policymakers, practitioners, and the general public. The communication process is multidimensional relying on diverse media, institutional collaborations, and skill-building initiatives to bridge the gap between research and practice (Riera et al., 2023; Besley et al., 2016).

4.2.1 Modes of Communication

Traditional Media.
Traditional media such as radio, television, and newspapers remain crucial tools for disseminating health research, particularly among rural and grassroots audiences (Fontaine et al., 2019). In Kenya, community meetings known as *barazas* have been used effectively to engage local populations in dialogue about scientific and health issues (Mutua, 2020). Such forums allow interpersonal communication and feedback, which enhance understanding and trust in scientific information.

Digital and Social Media.
Digital platforms such as X (formerly Twitter), YouTube, TikTok, and podcasts are increasingly recognized as important channels for health science communication. These platforms promote direct engagement, allowing scientists and institutions to share findings in accessible, interactive formats (Fahy & Nisbet, 2011; Weingart & Guenther, 2016). Kenyan research institutions and communicators increasingly use social media to reach younger demographics and urban audiences (KEMRI, 2024).

Training of Communicators and Scientists.
Capacity-building initiatives that train journalists, communicators, and scientists in effective communication are critical for ensuring accuracy and accessibility of health information. For example, the Kenya Medical Research Institute (KEMRI) offers short courses in *Health and Science Communication* to equip scientists with skills to translate research into public-friendly messages (KEMRI, 2024). Similarly, global training programs have demonstrated that such efforts improve message clarity, public trust, and evidence uptake (Besley et al., 2016; King et al., 2024).

Institutional Partnerships.
Collaborations between research organizations and media institutions enhance the credibility and reach of science communication. A notable example is the memorandum of understanding (MoU) between KEMRI and the Media Council of Kenya (MCK), which seeks to strengthen science journalism and evidence-based reporting (KEMRI, 2024; MCK, 2023). Institutional partnerships thus act as critical pathways for coordinated communication and capacity building across sectors.

4.3 Outcomes and Desired Impacts

The ultimate goal of science communication in health research is to translate evidence into awareness, behavior, and policy outcomes. Effective communication increases public understanding of health research, supports the uptake of evidence-based interventions, enhances policy influence, and fosters accountability and community empowerment (Riera et al., 2023; Rowbotham et al., 2023).

Increased public awareness and comprehension of health information can promote informed decision-making and behavioral change (Fischhoff & Scheufele, 2013). Improved dissemination and dialogue also strengthen the link between research and policy by ensuring that policymakers are aware of, and able to act upon, scientific findings (Cairney & Oliver, 2017; Zhou & Otieno, 2019). Additionally, participatory communication approaches empower communities by creating feedback loops that ensure health interventions are contextually appropriate and inclusive (Rowbotham et al., 2023).

4.4 Moderating Variables: Kenya's Socio-Cultural and Institutional Context

The framework recognizes that the relationship between science communication strategies and the societal uptake of health research is moderated by Kenya's socio-cultural and institutional environment.

4.4.1 Cultural Beliefs, Language Diversity, and Literacy Levels

Cultural perceptions of health and illness, variations in local languages, and differing literacy levels shape how communities interpret and respond to health messages. In many Kenyan settings, beliefs in traditional healing and spiritual causation of illness persist alongside biomedical explanations (Kenya Medical Research Institute [KEMRI], 2025). Such beliefs can affect whether communities trust and adopt scientifically grounded health recommendations (Young & Wamue, 2019).

Language diversity further influences comprehension and engagement with health information. Studies show that a significant portion of Kenya's lower-socioeconomic populations rely on indigenous languages for healthcare communication, limiting their access to information presented primarily in English or Kiswahili (Mulwa et al., 2023). Moreover, informal and community-based literacy practices among Maasai women have been shown to support culturally embedded health learning, illustrating that literacy levels and the modes through which people learn moderate the reception of scientific messages (Muthoni & Wanjau, 2024).

Therefore, for science communication to be effective in Kenya, it must align with local cultural norms, be communicated in accessible languages, and consider literacy variations across regions and populations.

4.4.2 Institutional Coordination

Institutional coordination refers to collaboration among ministries, universities, research institutions, and media organizations to ensure consistency in messaging, efficient dissemination, and policy integration. Evidence from Kenya's health sector shows that while coordination frameworks exist, fragmentation and misalignment across institutions undermine effective use of research findings (Odhiambo et al., 2023; Republic of Kenya, Ministry of Health, 2018). Weak institutional coordination may lead to duplicated efforts

and reduced policy responsiveness to scientific evidence (Rosseau & Njoroge, 2023).

In contrast, effective coordination enhances legitimacy and trust in research outputs. Kenya's "Health in All Policies" strategy, for example, demonstrates how structured institutional collaboration can support integration of evidence into policy development (Zhou & Otieno, 2019). Institutional partnerships also facilitate shared learning and communication across sectors, thereby improving the societal reach and impact of health research (World Health Organization [WHO], 2024).

4.5 Strengths and Enablers in the Kenyan Context

Kenya exhibits several enabling factors that strengthen science communication and the societal uptake of health research.

4.5.1 Public Trust in Scientists.

Empirical evidence suggests that the Kenyan public holds a relatively high level of trust in scientists and health researchers (Wellcome Global Monitor, 2020). This trust facilitates receptiveness to scientifically framed health messages, which can enhance compliance with public health guidance and increase engagement with research outcomes (OECD, 2021). Public confidence in science is therefore a critical enabler of effective communication and knowledge translation (Scheufele & Krause, 2019).

4.5.2 Institutional Initiatives and Workshops.

Institutions such as the Kenya Medical Research Institute (KEMRI) have taken proactive steps to strengthen communication capacity among scientists and journalists. For instance, KEMRI has hosted storytelling workshops for science communication (KEMRI, 2024) and offers short courses in *Health and Science Communication* to bridge the gap between research and the public (KEMRI, 2024). These initiatives underscore institutional commitment to improving message clarity and contextual relevance.

4.5.3 Digital and Media Collaboration Platforms.

Recognition of the role of digital platforms has expanded in Kenya's health research ecosystem. Forums such as the *National Science Research Translation Congress* emphasize the importance of using social media, online repositories, and mass media to amplify evidence-informed communication (National Commission for Science, Technology and Innovation [NACOSTI], 2024). Partnerships between KEMRI and the Media Council of Kenya (MCK) further enhance the quality and reach of health reporting, fostering collaboration between researchers and media professionals (MCK, 2023).

4.5.4 Training and Capacity Development.

Training opportunities for communicators and scientists play a significant enabling role. KEMRI's short courses and MCK-led journalist training sessions have strengthened the professional capacity of those responsible for translating complex scientific findings into accessible messages (KEMRI, 2024; MCK, 2023). Such programs align with international recommendations emphasizing that communicator training enhances credibility, accuracy, and inclusivity in science communication (Besley et al., 2016; King et al., 2024).

Overall, these strengths—ranging from public trust and institutional commitment to growing digital engagement—position Kenya as a leading example of a developing-country context where science communication is increasingly institutionalized and valued within health research ecosystems.

4.6 Dependent Variables: Societal Uptake and Impact of Health Research

The ultimate goal of science communication is to promote societal engagement with health research and translate evidence into tangible public benefits.

4.6.1 Policy Uptake:

Effective communication ensures that research findings inform and shape public health policies and regulations (Zhou & Otieno, 2019). When scientific evidence is clearly communicated and aligned with national and sectoral priorities, it increases the likelihood of being integrated into decision-making processes (Cairney & Oliver, 2017). In Kenya, translating evidence into policy has been facilitated by initiatives such as the "Health in All Policies" framework, which emphasizes intersectoral collaboration and communication between researchers and policymakers (Zhou & Otieno, 2019; World Health Organization [WHO], 2024). Studies further show that consistent knowledge translation mechanisms such as policy briefs, stakeholder dialogues, and media engagement enhance the visibility and uptake of research evidence in African health systems (Riera et al., 2023).

4.6.2 Public Participation

Enhanced understanding of health research empowers communities to engage in health-related decision-making, advocacy, and behavioral change (Muthoni & Wanjau, 2024). Public participation is closely tied to the accessibility, cultural relevance, and language of scientific messages (Young & Wamue, 2019). Community engagement strategies that respect local norms and leverage participatory communication approaches have been shown to improve trust and cooperation in implementing health programs (Mwangi et al., 2023). Furthermore, citizen science initiatives in Kenya have demonstrated that involving communities in data collection and dissemination fosters shared ownership and practical use of research findings (Rowbotham et al., 2023),

4.6.3 Health Innovation and Outcomes

The uptake of well-communicated scientific evidence drives innovation in healthcare delivery and improves population outcomes. When research findings are effectively disseminated, they promote adaptive learning, health technology adoption, and service delivery innovation (Rosseau & Njoroge, 2023). For example, the successful use of community health data in Kenya depended on adequate training, responsive feedback mechanisms, and timely dissemination all critical components of science communication (Africa Institute for Development Policy [AFIDEP], 2024). Moreover, strong communication linkages between research institutions and practitioners have been

shown to accelerate innovation and strengthen the responsiveness of health systems (Odhiambo et al., 2023; Riera et al., 2023).

4.7 Framework Summary

The conceptual framework underscores that science communication functions not merely as a conduit for disseminating information but as an interactive, iterative process shaped by contextual realities (Besley et al., 2016; Riera et al., 2023). Effective science communication requires adaptation to the socio-cultural environment in which it occurs, acknowledging how local beliefs, languages, and literacy levels influence understanding and trust in science (Young & Wamue, 2019; Muthoni & Wanjau, 2024).

In Kenya, these socio-cultural dynamics intersect with institutional factors such as coordination, governance, and policy integration (Odhiambo et al., 2023; Republic of Kenya, 2018). Strong institutional linkages among universities, ministries, and media outlets enhance the credibility of communicated research and facilitate translation of scientific evidence into practice (Rosseau & Njoroge, 2023; Zhou & Otieno, 2019). Conversely, fragmented coordination can limit research uptake, highlighting the need for robust governance structures that support communication and evidence use (World Health Organization [WHO], 2024).

Consequently, successful science communication enhances societal relevance, strengthens policy integration, and amplifies the practical impact of health research. When communication strategies resonate with both Kenya's socio-cultural and institutional dynamics, they foster a more informed, participatory, and health-conscious society (AFIDEP, 2024; Fontaine et al., 2019).

The BAYA Model provides an applied micro-level guide for message formulation and delivery within this broader system, ensuring that research communication is simplified, culturally aligned, participatory, and action-oriented.

5. Challenges, Gaps, and Barriers

This section highlights **external factors in the environment** that influence outcomes, including societal, institutional, cultural, and infrastructural factors. Despite Kenya's progress in institutionalizing science communication, several challenges inhibit the effective translation of health research into public awareness, policy, and practice (NACOSTI, 2024; Riera et al., 2023). These barriers are interrelated, spanning communication gaps, cultural and linguistic limitations, and systemic resource constraints.

5.1 Scientist-Media Divide and Mistrust

A persistent divide between scientists and journalists undermines collaborative communication efforts. Many researchers express concerns about **misrepresentation, oversimplification, or sensationalism** of findings in the media (Peters, 2013; Clark et al., 2016). Conversely, journalists often lack the technical background or time to accurately interpret complex research (Besley & Nisbet, 2013). This mutual mistrust reduces opportunities for early engagement and limits the visibility of credible science in mainstream media.

In Kenya, the absence of standardized frameworks for science-media collaboration exacerbates these challenges (MCK, 2023). While partnerships such as the KEMRI-Media Council of Kenya (MCK) Memorandum of Understanding (MoU) represent a positive step, broader institutional guidelines for ethical and accurate science reporting remain underdeveloped (KEMRI, 2024).

5.2 Language, Accessibility, and Cultural Tailoring

Scientific findings are frequently disseminated in **technical or academic language**, which constrains public understanding and accessibility (Fischhoff & Scheufele, 2013). Kenya's linguistic diversity, encompassing English, Kiswahili, and numerous indigenous languages, means that monolingual dissemination risks excluding rural and low-literacy populations (Young & Wamue, 2019).

Culturally sensitive and participatory formats such as community *barazas*, storytelling, theatre, and role play have demonstrated success in engaging communities on health issues (Mutua, 2020; Muthoni & Wanjau, 2024). However, these traditional methods remain underutilized in research dissemination strategies, which often prioritize formal publication and policy briefs over community dialogue.

5.3 Dissemination and Real-World Impact

A significant proportion of research remains confined to academic circles and fails to reach policymakers or practitioners. Studies have noted that up to **80% of research output globally remains unused or inaccessible to end-users** (Riera et al., 2023). In Kenya, weak feedback mechanisms and delayed communication often initiated only after project completion-limit opportunities for co-creation and contextual uptake (Zhou & Otieno, 2019).

The **science-policy-practice interface** remains weak, partly due to institutional silos and insufficient coordination between research organizations, government agencies, and civil society (Odhiambo et al., 2023). Strengthening these linkages is crucial to ensure that evidence informs both policy design and community-level interventions.

5.4 Infrastructure, Resourcing, and Capacity

Limited financial and institutional support continues to constrain the growth of science communication in Kenya. Although capacity-building initiatives such as the KEMRI/MCK training programs-have been introduced, broader funding and structural support remain inadequate (MCK, 2023; KEMRI, 2024).

Journalists often lack dedicated funding (e. g., story grants) to cover complex scientific issues, and monitoring and evaluation (M&E) of communication activities are rarely institutionalized (AFIDEP, 2024). Global research highlights that sustainable investment in communication capacity, infrastructure, and evaluation is essential for long-term impact (King et al., 2024; Peters, 2013).

6. Key Components of an Effective Bridge: Proposed Framework

Based on the literature and Kenyan context, the following components form a framework for effective science communication bridging health research and society (Besley & Nisbet, 2013; Fischhoff & Scheufele, 2013; Mutua, 2020; Muthoni & Wanjau, 2024):

6.1 Early Engagement & Co-Creation

Engage media, policymakers, and community stakeholders from the **research design phase**, rather than only during dissemination. Early engagement fosters relevance, alignment, trust, and mutual understanding (Riera et al., 2023).

6.2 Tailored Communication Strategy

Develop communication plans that consider **audience segmentation** (community vs. policy vs. media), **language and cultural context**, and **appropriate channels** such as radio, social media, or community meetings (*barazas*) (Young & Wamue, 2019; Mutua, 2020).

6.3 Capacity Building

Train scientists in communication techniques including storytelling, plain language, and data visualization (KEMRI, 2024). Train journalists in research interpretation, health literacy, and ethical reporting (MCK, 2023).

6.4 Use of Multiple Platforms

Leverage **traditional platforms** (radio, *barazas*) and **digital platforms** (social media, podcasts) to expand reach, particularly in rural and underserved areas (AFIDEP, 2024).

6.5 Feedback Loops and Dialogue

Shift from one-way dissemination to interactive engagement. Listening to community concerns, co-designing messages, and fostering dialogue increases uptake and trust (Zhou & Otieno, 2019; Peters, 2013).

6.6 Institutional & Policy Linkages

Establish structures to translate research findings into policy and practice. Strengthen linkages between researchers, decision-makers, service delivery organizations, and community health structures (Odhiambo et al., 2023).

6.7 Monitoring & Evaluation

Define indicators of success such as reach, comprehension, behavior or decision change, and policy uptake. Regular evaluation helps refine communication strategies (King et al., 2024).

6.8 Sustainability & Funding

Secure ongoing funding for science communication to embed activities into research projects and institutional practice rather than one-off events (AFIDEP, 2024).

7. Implications for Health Research in Kenya

Applying the proposed framework for science communication to health research in Kenya entails the following considerations (Besley & Nisbet, 2013; Mutua, 2020; Muthoni & Wanjau, 2024; AFIDEP, 2024):

7.1 Integrate communication planning from project inception

Every health research project, whether a clinical trial, implementation study, or epidemiological investigation, should include a communication strategy. Researchers should ask: “Who needs to know this, why, how, and when?” (Riera et al., 2023). Researchers may apply the BAYA Model to translate findings into audience-centered messages that promote relevance, clarity, and engagement.

7.2 Allocate budget and time for science communication

Beyond traditional journal publications, resources should be directed toward policy briefs, community translation, and media engagements (King et al., 2024).

7.3 Institutionalize science communication functions

Organizations such as KEMRI, universities, and research centres should establish dedicated units, offices, or knowledge translation cores to coordinate communication efforts (KEMRI, 2024).

7.4 Strengthen collaboration with media and journalism institutions

Partnerships with media councils and journalism schools can ensure sustainable capacity building for accurate, accessible, and ethical health reporting (MCK, 2023).

7.5 Leverage community-based dissemination mechanisms

Approaches such as participatory community meetings (*barazas*) and local-language radio talk shows enhance accessibility and engagement (Young & Wamue, 2019).

7.6 Use digital and social media strategically

Online platforms can amplify messages, but researchers should ensure inclusion of populations with limited internet access (AFIDEP, 2024).

7.7 Package evidence for policymakers

Research findings should be presented in actionable formats such as policy briefs, infographics, or short videos to facilitate uptake (Zhou & Otieno, 2019).

7.8 Monitor and evaluate impact

Assess whether communication efforts are influencing health behaviors, policy adoption, or community awareness to iteratively refine strategies (Peters, 2013; Odhiambo et al., 2023).

8. Specific Kenyan Examples and Initiatives

Several Kenyan initiatives exemplify how science communication strategies can bridge health research and society:

8.1 KEMRI & Media Council of Kenya (MCK) Partnership

This collaboration focuses on strengthening science journalism and health communication. Activities include training journalists in evidence-based reporting and ethical dissemination of health research findings (Media Council of Kenya [MCK], 2023; Kenya Medical Research Institute [KEMRI], 2024).

8.2 KEMRI Storytelling for Science Communication Workshop (November 2024)

Bringing together researchers, journalists, and communication professionals, this workshop aimed to enhance skills in translating complex health research into accessible narratives for diverse audiences (KEMRI, 2024).

8.3 National Science Research Translation Congress (2025)

Hosted by the African Population and Health Research Centre (APHRC), this event convened researchers, media representatives, and policymakers to focus on media collaboration, digital branding, and policy impact. The congress highlighted the importance of cross-sectoral partnerships in promoting the uptake of scientific evidence (African Population and Health Research Centre [APHRC], 2025).

9. Limitations and Future Research / Research Gaps

9.1 Gaps and Areas for Future Work in Kenya

Despite progress in bridging health research and society in Kenya, several gaps remain:

a) **Empirical evidence on effective communication:** More research is needed on which channels, formats, languages, and target groups are most effective in science-to-society communication (Mutua, 2020; Muthoni & Wanjau, 2024).
b) **Evaluation frameworks:** Few studies systematically measure the impact of communication activities on reach, comprehension, behavior, or policy uptake (Peters, 2013; King et al., 2024).
c) **Addressing rural and low-literacy audiences:** Tailored messaging strategies are required to effectively reach diverse Kenyan contexts, including multilingual communities and rural populations (Young & Wamue, 2019; AFIDEP, 2024).
d) **Building sustainable institutional capacity:** Current efforts such as ad hoc workshops need to be complemented by permanent structures and long-term training programs (KEMRI, 2024; MCK, 2023).
e) **Strengthening the science-policy interface:** More structured mechanisms are needed to ensure that research evidence informs national and county health policies in ways that policymakers can readily use (Zhou & Otieno, 2019; Odhiambo et al., 2023).
f) **Combating misinformation:** With digital proliferation, health research findings compete with misinformation, which can spread more rapidly than verified scientific information. Proactive, culturally sensitive communication strategies are essential (Besley & Nisbet, 2013; Riera et al., 2023).
g) **Financing:** Dedicated funding lines are needed to support ongoing science communication within health research projects, ensuring sustainability and institutionalisation (King et al., 2024; AFIDEP, 2024).

9.2 Limitations

This study has several limitations:

a) **Data sources:** As a desktop review, it relied on publicly available documentation and did not include unpublished or internal organizational initiatives in Kenya, which may result in under-representation of community-level science communication activities (Peters, 2013; Mutua, 2020).
b) **Search methodology:** The review did not follow a full systematic review protocol with formal quality appraisal of each source; thus, findings should be interpreted as indicative rather than exhaustive or definitively representative (Liberati et al., 2009; Riera et al., 2023).
c) **Language and context bias:** By focusing on English and Swahili materials, the review may over-represent urban and institutional contexts while under-representing local or rural initiatives in other Kenyan languages (Young & Wamue, 2019; Muthoni & Wanjau, 2024).
d) **Source diversity:** Included materials ranged from news articles and institutional reports to peer-reviewed studies, varying in methodological rigor. The synthesis prioritized documented initiatives and peer-reviewed evidence where available (Besley & Nisbet, 2013; King et al., 2024).
e) **Conceptual framework:** The proposed framework should be seen as a starting point for empirical validation rather than a definitive model, acknowledging that further research is required to test and refine its applicability in Kenyan health research contexts (Odhiambo et al., 2023; AFIDEP, 2024).

10. Conclusion

In Kenya, bridging health research and society through science communication is both necessary and feasible. The public's trust in scientists provides a strong foundation to build upon (Besley & Nisbet, 2013; Mutua, 2020). However, trust alone is insufficient. Deliberate, well-designed, adequately resourced, and systematically evaluated communication efforts are required to connect researchers,

media, policymakers, and communities (King et al., 2024; AFIDEP, 2024).

Embedding science communication from the outset of research, engaging audiences meaningfully, and tailoring messages to local socio-cultural and institutional contexts enhances the uptake of health research findings (Muthoni & Wanjau, 2024; Young & Wamue, 2019). Such approaches increase the likelihood of broader societal and policy impact, fostering an informed, participatory, and health-conscious population (Odhiambo et al., 2023; Zhou & Otieno, 2019).

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