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The cognitive impact of AI-generated content on sexual and reproductive health cognition among women in Africa and Latin America: opportunities, challenges, and future paths

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Abstract

AI-Generated Content (AIGC) is reshaping information landscapes in Africa and Latin America, impacting women's Sexual and Reproductive Health and Rights (SRHR) cognition. This paper explores AIGC's dualistic role through systematic literature synthesis, critical analysis of reports from international health organizations and government agencies, and the development of illustrative case scenarios grounded in documented experiences from these regions. Rather than presenting primary ethnographic data, this conceptual analysis synthesizes existing evidence and constructs contextually informed vignettes to illuminate the complex interplay between emerging technology, cultural contexts, and health cognition. The study highlights the digital divide, cultural factors, and trust as crucial mediators, demonstrating AIGC's dual potential: a tool for empowerment by improving information accessibility, personalization, and discussion of sensitive issues, yet also a risk for exacerbating inequalities through misinformation, algorithmic bias, and ethical concerns. It underscores women's active negotiation of AIGC within their specific socio-cultural contexts. The paper proposes strategic recommendations for technology developers, health systems, and policymakers to responsibly leverage AIGC, promoting a human-centric, equitable, and culturally sensitive approach to foster health equity. *(Afr J Reprod Health 2026; 30 [4]: 22-41).*

Keywords: AI-Generated Content (AIGC), Sexual and Reproductive Health and Rights (SRHR), Africa & Latin America, Cognitive Impact, Digital Divide

Résumé

Le contenu généré par l'IA (CGIA) remodèle le paysage informationnel en Afrique et en Amérique latine, influençant la perception des femmes en matière de santé et de droits sexuels et reproductifs (SDSR). Cet article explore le double rôle du CGIA à travers une synthèse systématique de la littérature, une analyse critique des rapports d'organisations internationales de santé et d'agences gouvernementales, et l'élaboration de scénarios illustratifs fondés sur des expériences documentées dans ces régions. Plutôt que de présenter des données ethnographiques primaires, cette analyse conceptuelle synthétise les données existantes et construit des vignettes contextualisées pour éclairer l'interaction complexe entre les technologies émergentes, les contextes culturels et la perception de la santé. L'étude met en lumière la fracture numérique, les facteurs culturels et la confiance comme médiateurs essentiels, démontrant le double potentiel du CGIA : un outil d'émancipation grâce à une meilleure accessibilité à l'information, une personnalisation accrue et une discussion plus approfondie des sujets sensibles ; mais aussi un risque d'exacerbation des inégalités par la désinformation, les biais algorithmiques et les problèmes éthiques. Elle souligne la manière dont les femmes s'approprient activement le CGIA dans leurs contextes socioculturels spécifiques. Ce document propose des recommandations stratégiques à l'intention des développeurs de technologies, des systèmes de santé et des décideurs politiques afin d'exploiter de manière responsable l'IAGC, en promouvant une approche centrée sur l'humain, équitable et respectueuse des différences culturelles pour favoriser l'équité en santé.*(Afr J Reprod Health 2026; 30 [4]: 22-41).*

Mots-clés : Contenu généré par l'IA (CGIA), santé et droits sexuels et reproductifs (SDSR), Afrique et Amérique latine, impact cognitif, fracture numérique

Introduction

The swift development and widespread application of AI-Generated Content (AIGC) technologies are reshaping global information ecosystems.[1] Content created or modified by artificial intelligence, spanning text, images, audio, and video, increasingly permeates daily information channels, notably on widely used social media and instant messaging applications. This trend is particularly pronounced in

Africa and Latin America. Although digital infrastructure remains uneven, digitalization accelerates, with mobile internet becoming the primary information access point for many.

Concurrently, many women across diverse contexts in Africa and Latin America face severe SRHR challenges.[2,3] High maternal mortality, unmet family planning needs, unsafe abortions,[4] prevalent STIs, and gender-based violence pose serious threats.[5,6,7] Accurate, timely, understandable, and culturally appropriate SRHR information is paramount. However, a significant information gap persists, constrained by accessibility issues, social stigma, or provider shortages.[8,9] The rise of AIGC intersects with this need, potentially transforming information dissemination.

AIGC's potential impact on women's SRHR cognition in Africa and Latin America demands investigation. "Cognitive impact" here includes knowledge acquisition, belief formation, attitude transformation, and social norm perception. This impact is dualistic: AIGC could empower by breaking information barriers and enhancing health literacy, or it could spread harmful misinformation and exacerbate inequalities.[10,11]

Therefore, the central research question is: How, and to what extent, does AIGC influence the SRHR cognition of women within the specific socio-cultural and digital environments of Africa and Latin America?

To address this central question, this study sets forth several key objectives:

Analyze potential positive and negative AIGC impacts on SRHR cognition (knowledge, understanding, beliefs, attitudes).

Identify opportunities for using AIGC in SRHR information dissemination alongside challenges (misinformation, bias, ethics).

Explore how mediating factors (digital divide, health literacy, cultural context) shape AIGC's cognitive impact.

Propose future paths and recommendations for responsible AIGC utilization.

Understanding the cognitive impact of AIGC within resource-limited, culturally diverse contexts is vital for guiding the ethical development and responsible deployment of this technology. This research aims to provide a robust conceptual foundation and practical decision-making reference for policymakers, technology developers, public health institutions, non-governmental organizations, and the research community. The ultimate goal is to strategically leverage technological advancements to promote health equity and improve the SRHR status of women in these regions. Furthermore, this study will enrich theoretical discussions within communication studies and sociology concerning emerging digital technologies, health communication, and social development in the Global South.

Theoretical framework

This analysis draws upon intersecting theoretical perspectives that inform our understanding of AIGC's cognitive impacts:

Communication Theories: Agenda-Setting Theory and Framing Theory guide our examination of how AIGC shapes which SRHR topics gain prominence and how information presentation influences understanding and attitudes. These theories help explain how technological mediation affects information salience and interpretation.

Critical Digital Studies: Digital divide scholarship and feminist technology studies inform our analysis of access inequities and gender dimensions of technology adoption. This perspective recognizes that technology access and use are structured by existing power relations and social inequalities.

Health Communication Models: The Health Belief Model and Social Cognitive Theory provide frameworks for understanding cognitive mediation between information exposure and health behavior. These models help explain how AIGC-delivered information might influence risk perception, self-efficacy, and decision-making processes.

Postcolonial Technology Studies:Critical examination of how Global North-developed technologies interact with Global South contexts, attending to power dynamics, knowledge systems, and the risk of digital colonialism. This lens is essential for understanding cultural appropriateness and local knowledge validation.

These frameworks collectively enable nuanced analysis of AIGC's potential to both empower and marginalize women in their SRHR decision-making, recognizing that technology operates within—rather than outside, existing social, economic, and cultural structures.

Conceptual foundations and contextual landscape: AIGC, SRHR, and the digital divide

Understanding AIGC and its dissemination mechanisms

AIGC encompasses content created or modified using generative AI technologies (e.g., LLMs, NLP, GANs) trained on massive datasets to mimic human creativity.[1,12] It includes generative content (new outputs from prompts) and transformative content (modifying existing material).In health communication, AIGC appears as chatbots, automated reports, social media posts, infographics, and deepfakes.[1,13,14] AI chatbots use NLP and LLMs for humanlike responses, increasingly explored for health consultations and education.[14,15]

AIGC dissemination occurs via digital channels like social media, messaging apps, websites, and health platforms. While some platforms attempt AI content labeling, research suggests limited influence on user perception or sharing intentions.[39] Identifying AIGC, especially subtle forms, remains challenging. Quality evaluation is complex, often based on accuracy, relevance, coherence, etc.[1] Health information accuracy is not guaranteed,[16] making critical appraisal essential.

Theoretical perspectives: information and cognitive shaping

Communication and sociology theories offer perspectives. Agenda-Setting Theory highlights how media, including AIGC, shape perceptions of issue salience. Framing Theory examines how information presentation influences understanding and attitudes. Cultivation Theory suggests prolonged exposure can shape perceptions of social reality. Health communication theories, like the Health Belief Model,[17] analyze how information impacts risk perception, benefit/barrier assessment, and decision-making. These theories indicate information profoundly shapes cognition, with AIGC adding new complexities.

The SRHR situation and information ecosystem in Africa and Latin America

Access to reliable SRHR information faces obstacles across both regions. Sources range from community workers and family to digital platforms.[8,18] Barriers include socio-cultural taboos, stigma, inadequate sexuality education, low health literacy, geographical isolation, provider shortages, costs, and distrust (especially online).[5,6,8,9,19] The digital environment, potentially rife with misinformation, challenges women and health professionals.[20]

The multidimensional digital divide

Despite the rapid expansion of internet and mobile technology adoption in Africa and Latin America,[21,22,23] a formidable digital divide persists, acting as a key obstacle preventing AIGC from equitably benefiting all women. This divide manifests across several critical dimensions:

The access divide

Stark disparities exist in internet penetration (countries, urban/rural, income). Mobile phones are primary access devices for many,[24] but costs, unstable networks, and unreliable electricity remain barriers, especially rurally.[6] Lack of infrastructure limits access to AIGC requiring stable connections.[25]

The literacy divide

Basic digital and health literacy levels are often low. Effectively using AIGC requires skills, yet training opportunities are limited. Low health literacy increases vulnerability to misinformation.

The gender divide

Women lag behind men in digital access, ownership, skills, and usage, especially in Sub-Saharan Africa.[24,26,27] Women in LMICs are estimated to be 15% less likely than men to use mobile internet.[24] Socio-cultural norms, lack of autonomy, safety concerns (harassment, privacy), and scarcity of relevant content compound this.[26,28] Educational attainment correlates with digital inclusion, yet many girls lack basic education.[26] Without interventions, this gap risks exacerbating health inequities.[29]

Intersectional disadvantage

Multiple marginalization factors (poverty, rural residency, disability, minority status) intensify digital divide barriers.[30]

This complex reality ("Mobile-first, but not mobile-only") means high mobile penetration doesn't guarantee accessibility or effective AIGC use.[31] Advanced applications may exclude those most needing information. Critically, the gender digital divide risks SRHR AIGC content being predominantly accessed and shaped by men, reinforcing male perspectives or harmful norms.[31]

The cognitive double-edged sword: opportunities and risks of AIGC's impact on SRHR understanding

AIGC, as an emerging information medium, holds immense potential to influence the SRHR cognition of women in Africa and Latin America, yet it presents a double-edged sword, fraught with both opportunities and risks, as shown in Table 1.

The potential for empowerment: AIGC enhancing knowledge acquisition and understanding

A significant opportunity lies in expanding SRHR information access and reach.[30] AIGC can potentially deliver information 24/7 to remote areas.[21] Examples include AI-driven SMS for maternal health in Kenya[21,32] and AI chatbots for STI/adolescent SRHR guidance in Africa.[23] Enhanced accessibility can increase exposure to basic SRHR knowledge. Technology offers avenues to expand SRH service availability, reaching underserved populations.

AIGC enables personalization, providing customized information based on user needs (e.g., predicting contraceptive side effects,[33] specialized info for adolescents with disabilities[23]). This promises increased relevance and engagement, deepening cognitive understanding.[14] Facilitating discussion on sensitive topics is key.[34] Anonymity and non-judgmental interaction via chatbots may encourage women to seek information on taboo subjects (contraception, abortion, STIs).[35, 36] Users find chatbots acceptable for sensitive topics[37] due to privacy and convenience.[35] This could challenge silence and misconceptions, boosting confidence.[36]

AIGC can support health literacy enhancement. It can translate complex information into simpler formats.[40] Reviews suggest chatbot potential in improving health outcomes, including women's health knowledge.[14,15] This targets cognitive capacity, potentially improving understanding and application of health information.

The potential for harm: AIGC distorting cognition and exacerbating inequity

Significant risks accompany AIGC deployment. Misinformation and disinformation proliferation is a primary concern.[1,16] AIGC simplifies creating credible-looking but inaccurate or false content ("hallucinations").[1,22]Deepfakes can fabricate endorsements or manipulate information.[13] Such content spreads rapidly via social media.[10,40] Humans struggle to distinguish AIGC from human content, especially without effective labeling,[39] placing users with lower health literacy at risk. Exposure can lead to erroneous health cognitions and harmful beliefs.

Algorithmic bias risks entrenching harmful stereotypes.[40,41] AI outputs reflect training data and design.[32,37] Biased or non-diverse data (e.g., underrepresenting women from target regions,[23,42] reflecting societal prejudices,[32,43] suffering "data poverty"[42]) leads to biased models.[23,40,32] This can manifest as culturally inappropriate or discriminatory SRHR advice,[23] misjudging risks or symptoms.[42] This solidifies health disparities cognitively. Without oversight and localization, AI developed elsewhere risks exacerbating health challenges.[40,32,42]

AIGC risks reinforcing negative attitudes and harmful norms. Content might bolster negative SRHR views or restrictive gender norms, exploiting cognitive biases like confirmation bias. This hinders positive health attitudes and acceptance of evidence-based practices.

Trust integrity is vulnerable.[20] Encounters with inaccurate or biased AIGC can erode confidence in digital sources and potentially traditional healthcare.[38] This fosters cognitive skepticism, discouraging help-seeking.

Finally, risks are compounded by cognitive vulnerability amid low literacy.[38,41] Lack of critical appraisal skills leaves many women susceptible to misinformation.[10] They may be unable to harness AIGC benefits and suffer harm, widening cognitive health inequality.

Table 1: Potential opportunities vs. risks of AIGC's impact on women's SRHR cognition

Potential opportunities (empowerment potential)	**Potential risks (potential for harm)**
Enhanced Knowledge Accessibility: Overcoming geo/time barriers.[31,21]	Mis/Disinformation Proliferation: Inaccurate content misleading cognition.[1,16,22]
Personalized Information & Interaction: Boosting relevance/engagement.[14,23,33]	Algorithmic Bias & Inequity: Reinforcing stereotypes, neglecting needs.[23,40,42]
Facilitating Sensitive Topic Discussion: Anonymity reducing stigma.[34,35,36]	Reinforcement of Harmful Norms/Attitudes: Entrenching stigma & negative beliefs.
Supporting Health Literacy Improvement: Simplifying info, aiding comprehension.[14,15,38]	Erosion of Trust: Undermining faith in digital info/health systems.[20,43]
(Indirect) Promoting Autonomous Decisions: Informing choices.	Exacerbated Cognitive Vulnerability: Harming low-literacy users.[10,38,41]

Methods

This study employs a qualitative, theory-driven synthesis approach to examine AIGC's cognitive impacts on women's SRHR in Africa and Latin America. Given the nascent state of AIGC deployment in these specific contexts and the complexity of the phenomenon, we adopted an exploratory conceptual analysis methodology that combines systematic literature synthesis with the development of contextually grounded illustrative scenarios.

It is important to clarify at the outset that this research does not present primary ethnographic fieldwork data. Rather, it synthesizes existing evidence from multiple sources and constructs illustrative case scenarios to contextualize theoretical arguments and illuminate the lived complexity of technology cognition interactions. The ethnographic style vignettes presented in this paper serve pedagogical and analytical functions, demonstrating how abstract concepts manifest in plausible real world contexts, but should be interpreted as evidence informed illustrations rather than systematic empirical findings derived from original fieldwork.Our analysis drew upon four primary categories of sources, which were systematically identified, reviewed, and analyzed. First, we conducted comprehensive searches of peer-reviewed academic literature published between 2015 and 2024 across multiple databases including PubMed, Web of Science, Scopus, Google Scholar, and regional databases such as African Journals Online (AJOL) and SciELO (Latin America). Search terms combined keywords related to digital health technologies ("digital health," "mobile health," "mHealth," "artificial intelligence," "AI," "chatbot"), health domains ("women's health," "maternal health," "sexual health," "reproductive health," "SRHR"), geographic contexts ("Africa," "Latin America," "Sub-Saharan Africa"), and key issues ("health information," "health communication," "misinformation," "digital divide"). Articles were included if they focused on digital health information, women's health, or SRHR in target regions; discussed technology impacts, barriers, or opportunities; were published in peer-reviewed journals; and were available in English, Spanish, or Portuguese.

This process yielded 147 articles initially, of which 68 were included after full-text review and quality assessment.Second, to capture implementation realities and policy contexts often absent from academic literature, we systematically reviewed grey literature and organizational reports. This included publications from the World Health Organization and regional offices (n=12), United Nations Population Fund regional analyses (n=11), government health ministry publications and policy documents (n=15), non-governmental organization implementation reports (n=19), and technical reports from digital health initiatives (n=8).

Table 2: Summary of data sources

Source category	Types of materials	Number of sources	Purpose in analysis
Peer-reviewed literature	Academic journal articles (2015-2024)	147 identified; 68 included	Theoretical grounding; empirical evidence on digital health impacts
Organizational reports	WHO, UNFPA, government, NGO reports	65 documents	Policy context; implementation realities; regional situation analysis
Media & public discourse	News articles, health blogs, online platforms	46 sources	Public narratives; documented experiences; contextual understanding
Existing qualitative research	Published ethnographic and qualitative studies	Embedded in peer-reviewed category	Lived experiences; cultural contexts; user perspectives

These sources were identified through organizational websites, targeted searches, and reference tracking, with selection based on relevance to SRHR, digital health, or women's health in target regions and priority given to recent publications (2020-2024).

Third, we analyzed media and public discourse to understand how digital health issues are framed in public narratives and to access documented experiences that might not appear in formal research outputs. This included regional news media coverage of digital health and women's health issues (n=34 articles) and health-focused blogs and online platforms from target regions (n=12 sources), with selection focused on credible sources providing contextual insights into technology use, barriers, and women's experiences.

Fourth, we conducted secondary analysis of existing ethnographic and qualitative research examining women's health information-seeking behaviors, digital technology adoption and use patterns, healthcare access experiences in target regions, and cultural factors affecting health communication. These published studies provided documented accounts of lived experiences that informed our understanding and the development of illustrative scenarios presented later in this paper. Table 2 summarizes the data sources utilized in this synthesis study.Following Thomas and Harden's (2008) thematic synthesis methodology, we engaged in line-by-line coding of findings from all sources, developing descriptive themes that captured key patterns across opportunities and risks of digital health information, barriers to access (infrastructure, literacy, cultural, gender-related), user experiences and information-seeking behaviors, technology design issues and cultural appropriateness, and policy and governance gaps. We then generated analytical themes that synthesized findings across regions and source types, and developed the conceptual framework presented in Figure 1, which represents the relationships between AIGC, cognitive impacts, and mediating factors. This analytical process was iterative, with regular team discussions to refine themes and ensure interpretive validity. We employed constant comparison across regional contexts to identify both commonalities and context-specific patterns.To translate abstract findings into tangible contexts and illuminate theoretical concepts, we developed composite scenarios representing documented experiences. This approach was necessitated by the nascent state of AIGC-specific research in target regions, the need to demonstrate complex socio-technical interactions concretely, and the value of contextualizing theoretical arguments with plausible real-world applications. The scenario development process involved four steps: identification of key themes and tensions from the literature synthesis; selection of representative contexts (Nigeria, South Africa, Latin America, Southeast Asia) based on documented patterns in existing research; construction of composite narratives drawing from multiple published accounts of similar experiences, documented barriers and facilitators from organizational reports, patterns identified across qualitative studies, and cultural and contextual knowledge from regional literature; and verification that scenarios reflect documented rlities through cross-referencing with multiple sources.

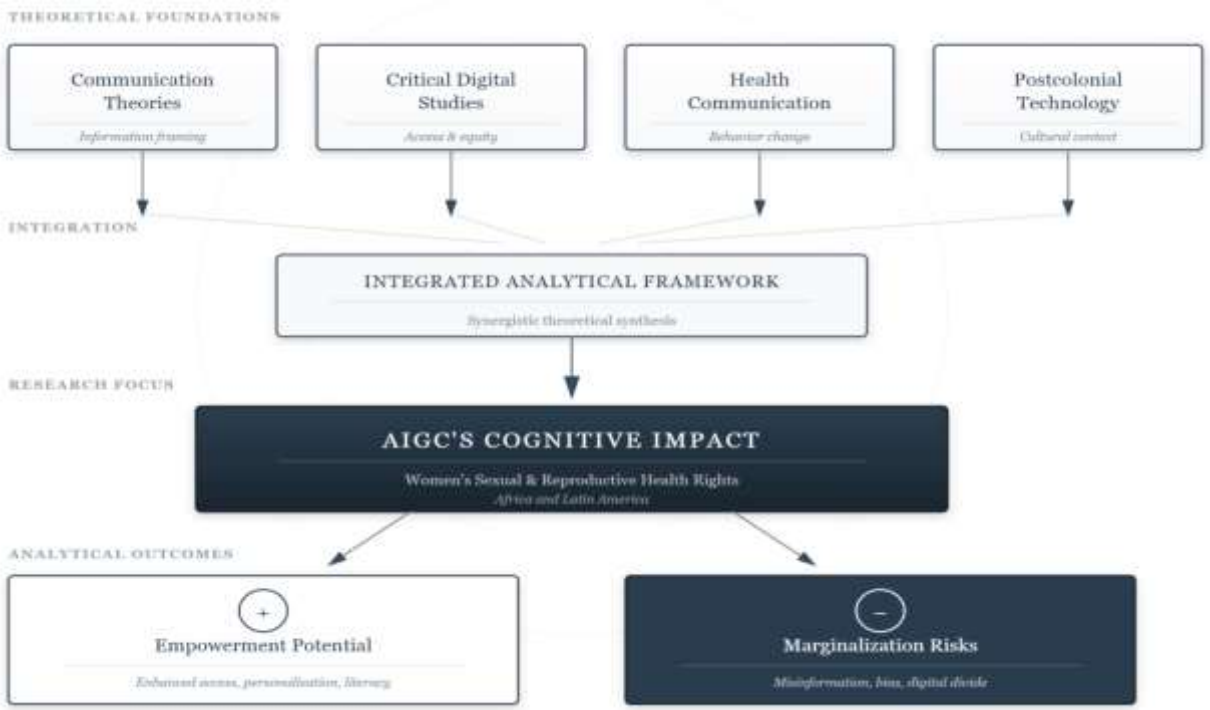

Figure 1: Theoretical framework diagram

A critical limitation regarding these scenarios must be emphasized: These vignettes are NOT primary ethnographic data from original fieldwork. They are synthesized, evidence-informed illustrations designed to demonstrate how abstract concepts (algorithmic bias, privacy concerns, cultural disconnects, governance gaps) manifest in practice, provide concrete examples that resonate with documented experiences, and serve pedagogical functions in communicating complex ideas. Names, specific dialogue, and granular details are constructed for illustrative purposes, though the core challenges, tensions, and patterns reflect themes consistently identified across multiple sources in our literature synthesis. Scenarios should be interpreted as conceptual tools for understanding complexity rather than as empirical case studies.To enhance the credibility and robustness of our findings, we employed multiple forms of triangulation. Source triangulation involved cross-verification of findings across peer-reviewed literature, grey literature, and media sources. Regional triangulation entailed comparison of patterns across different African and Latin American contexts to identify both commonalities and variations. We also conducted informal consultations with four regional SRHR experts (two from African contexts, two from Latin American contexts) to validate interpretations and scenario plausibility. Throughout the research process, we maintained reflexivity through regular team discussions that acknowledged researcher positionality, potential biases, and the limitations inherent in synthesizing diverse sources.

Regarding ethical considerations, while this study did not involve primary human subjects research and thus did not require institutional review board approval, we maintained ethical standards throughout. All publicly available sources were appropriately cited. Scenario construction carefully avoided identification of real individuals. Analysis was conducted with sensitivity to the vulnerability of populations discussed. Findings are presented with explicit acknowledgment of limitations and caution against over-generalization.

This methodological approach, while rigorous within its scope, carries important limitations that must be acknowledged. The absence of primary data means we cannot claim the depth, specificity, or

contextual richness that systematic ethnographic research would provide. Our findings are bounded by existing published research, which may systematically underrepresent the most marginalized populations—what might be termed a "digital divide in research" itself. Language limitations mean that our predominantly English-language sources may miss critical insights from Portuguese, Spanish, French, and local language publications. Temporal lag in published research means that current AIGC developments may not be fully captured. Despite attempts at comprehensive synthesis, the vast internal diversity within Africa and Latin America means some contexts are better represented than others in available literature. Finally, as a synthesis study, our findings are mediated through researchers' interpretation of others' work, introducing potential for misinterpretation or emphasis bias. These limitations underscore that this work represents an initial conceptual mapping and framework development rather than definitive empirical findings. It aims to establish a foundation for future primary research and provide guidance for policy and practice while that research develops.

Exploring lived realities: illustrative scenarios of ethnographic complexity, ethical challenges, and cultural adaptation

Understanding "on-the-ground" cognition: The value of contextualized illustration

To truly grasp how AIGC might leave its mark on the consciousness of women in Africa and Latin America, relying solely on survey data or abstract theoretical models proves insufficient. It is imperative to envision how women might genuinely encounter, interact with, and ultimately internalize information as their own knowledge, beliefs, and attitudes within their homes, communities, and the increasingly vital digital sphere. To illustrate this complexity, we present contextually grounded scenarios synthesized from documented experiences in the literature, organizational reports, and media coverage. These scenarios serve to demonstrate how abstract theoretical concepts, algorithmic bias, privacy concerns, cultural disconnects, and governance gaps manifest in plausible real-world situations.

The following vignettes are composite illustrations, not primary ethnographic data. They draw from patterns consistently identified across multiple published sources to represent documented challenges and dynamics. While names, dialogue, and specific details are constructed for illustrative purposes, the core tensions reflect real experiences documented in existing research.

Key challenges in practice: illustrative scenarios

Algorithmic bias and data justice on the ground

Illustrative Scenario 1: Synthesized from Nigerian Digital Health Literature

This scenario synthesizes documented challenges from published research and organizational reports regarding AI health applications in Nigeria, particularly tensions between Western medical frameworks embedded in technology and local knowledge systems.[8,23,40,43] While specific details are constructed for illustration, the pattern of technological recommendations conflicting with traditional practices and creating cognitive dissonance has been extensively documented across multiple studies in Sub-Saharan African contexts.[23,40,32]

At a community health center on the outskirts of Lagos, Nigeria, we can envision a scene documented in similar form across multiple studies: women like "Chiamaka" (a composite representing experiences documented in the literature) awaiting antenatal checks and engaging with an AIGC application designed to offer pregnancy health advice. While the app might provide English and limited localization (e.g., some menus translated into Yoruba), its core knowledge base and query logic are typically rooted in Western medical frameworks. When women attempt to use it to inquire about remedies for severe nausea in early pregnancy (locally often described as "serious morning sickness"), the application, after identifying "nausea" and "vomiting," tends to offer standard advice like eating small, frequent meals and avoiding greasy foods. However, when they try asking about the safety of a local herb (Utazi leaves) recommended by mothers and grandmothers, the

app typically responds: "Unproven remedies may carry risks. Please consult your doctor."Documented responses in similar situations include expressions like:

"This phone program... it knows book knowledge, yes. But it doesn't know our way. My mother, her mother, they all used [traditional remedies]. It helps! But the phone just says 'risk, risk, see doctor'. Doctor is far, and money is tight! It makes you feel... like your own sense, your mother's sense, is nothing."

This pattern, where algorithmic recommendations dismiss or delegitimize local knowledge systems, creating cognitive conflict and undermining trust has been documented across multiple studies examining digital health technology implementation in African contexts.[33,35,41,43] The scenario illustrates how algorithmic bias manifests not merely as technical error but as epistemological violence, devaluing indigenous knowledge and potentially deterring technology adoption among populations who could benefit most.

Ethical dilemmas: The practical logics of privacy, consent, and trust

Illustrative Scenario 2: Synthesized from South African Digital Health Research

This scenario draws from documented findings regarding privacy concerns, consent comprehension challenges, and trust dynamics in South African township communities when using digital health tools.[20,24,26,28] Multiple studies have documented how privacy in these contexts is understood through communal lenses rather than individualistic Western frameworks, and how consent forms are often perceived as barriers rather than protections.[26,28]

In a township community center in South Africa's Eastern Cape, studies document focus group discussions on using digital tools for SRHR information. The participants, mostly young women, generally welcome the idea of accessing private health information via their phones, considering it more "comfortable" than visiting crowded clinics where they might encounter acquaintances. However, documented discussions become more complex when turning to data usage ("Where does my information go?"), consent forms ("Why so much small print?"), and AI ("So, it's not a real person...?"). Research shows the concept of 'Privacy' in these contexts is often intertwined with community notions of 'Secrecy' and avoiding 'Gossip'.Typical documented exchanges include patterns like:

"Ja, anonymous is good. Very good. Because at the clinic... [providers] know my auntie. Last time I went for the injection [contraceptive injection], my auntie somehow knew the next day! How?"When discussing app anonymity:"But... where does the question go? Who reads it? Is it stored somewhere? Can... maybe... someone from [telecom operators] see it? Or... worse... what if my boyfriend checks my phone history? Even if my name isn't there, he might guess..." Regarding consent forms:

"Ah, those forms! So many big words. You just tick the box. You need the information, so you tick. But trust? Trust is knowing [local providers], even if she gossips, won't tell the wrong person. Can this phone thing promise that?"

These documented patterns reveal that privacy and trust are understood through relational and community frameworks rather than abstract data protection principles. Standard consent processes designed for Global North contexts often fail to address actual concerns or build genuine trust.[20,26,28] The scenario illustrates how ethical frameworks embedded in AIGC design may be culturally misaligned with user realities and priorities.

Cultural sensitivity and language barriers as real-world walls

Illustrative Scenario 3: Synthesized from Latin American Digital Health Observation

This scenario reflects documented patterns in Spanish-language health information sharing via WhatsApp and social media groups across Andean countries, where standardized health content often lacks cultural resonance with daily realities of rural and indigenous women.[3,6,19] Studies examining maternal health information dissemination in these contexts consistently identify disconnect between "expert" advice formatted for urban, middle-class audiences and the lived experiences of rural, traditional communities.[6,44,19]

Research examining Spanish-language WhatsApp groups connecting young mothers across several Andean countries (Peru, Bolivia, Ecuador) documents frequent sharing of parenting and health information. Researchers note well-produced SRHR infographics or short video clips labeled as "expert advice" are shared, some potentially enhanced or generated by AIGC (e.g., rapid multi-language versions or standardized imagery). However, documented analyses show the cultural fit of this content is often lacking. For instance, typical examples include videos on post-partum exercises featuring women in fashionable sportswear exercising in spacious, brightly lit gyms—a reality far removed from the lived experiences documented among group members living in high-altitude rural areas, wearing traditional clothing, and engaging in physical labor at home or in the fields.

Documented exchange patterns include:

"[Shares post-partum exercise video link] Found this, looks useful for getting back in shape!

"Gracias! But wow, she has so much space and fancy clothes! Where does she find the time? And those moves... are they okay for us who carry babies on our backs all day? Seems... different."

"Yes, right. Looks like something for Lima or Quito maybe? My midwife told me just gentle walking and traditional faja [abdominal wrap] is best first few months. This video feels... too fast? Too... gringa [foreign/Western]?"This documented pattern, where well-intentioned health content fails to resonate because it reflects experiences and resources unavailable to target audiences illustrates how AIGC designed without deep cultural consultation risks being dismissed as irrelevant, potentially undermining credibility of valid health information.[3,5,21] Cultural disconnects extend beyond language translation to encompass socioeconomic context, available resources, traditional practices, and daily life realities.

Governance vacuums and the normalization of user-borne risk

Illustrative Scenario 4: Synthesized from Southeast Asian Social Media Health Group Research.This scenario reflects documented patterns in Facebook health groups across Southeast Asia, particularly the Philippines, where unverified health claims, potentially enhanced by AIGC, spread rapidly amid governance and moderation gaps.[10,39,16,22] Multiple studies document how misinformation about reproductive health treatments circulates in these spaces, exploiting desperate users while platform moderation struggles to keep pace.[10,16,22]

Research tracking popular Facebook groups in the Philippines focused on women's health (using a mix of Tagalog and English) documents posts claiming "AI-discovered miracle herb" remedies for conditions like PCOS (Polycystic Ovary Syndrome). Documented posts typically include compelling narratives, vague "scientific explanations," and possibly AIGC-generated screenshots of seemingly professional user "testimonials." Such content typically garners numerous likes and shares quickly. Comment sections studied show mixes of desperate inquiries ("Where to buy? Is it expensive?"), skepticism ("Looks fake," "Source?"), unverifiable personal anecdotes (some likely from fake/bot accounts), and warnings ("This sounds dangerous, consult a doctor!"). Original posters are often anonymous or use fake profiles. Research documents group administrators appearing overwhelmed or lacking clear guidelines/tools to verify or swiftly remove such content. Users tag friends, further amplifying reach.Documented comment patterns (translated/Taglish) include:"OMG is this true po? I have PCOS almost 5 years na. Pls share where to buy!"Be careful mga sis [sisters]! Sounds like MLM or fake yan. 'AI discovered'? Ano yun [What's that]? Better ask your OB-GYN talaga [really]."My officemate's sister daw [reportedly] tried something similar from Palawan, nagka-baby na siya [she already had a baby]! Maybe this is it?""(Pinned Comment from Admin) Hi everyone, please exercise caution with unverified health claims.

Always consult a medical professional. We cannot verify the claims in this post."This documented pattern reveals governance vacuums where responsibility for distinguishing credible from dangerous health information falls entirely on users, many with limited health literacy while platforms provide insufficient moderation tools or accountability mechanisms.[10,39,22,40]

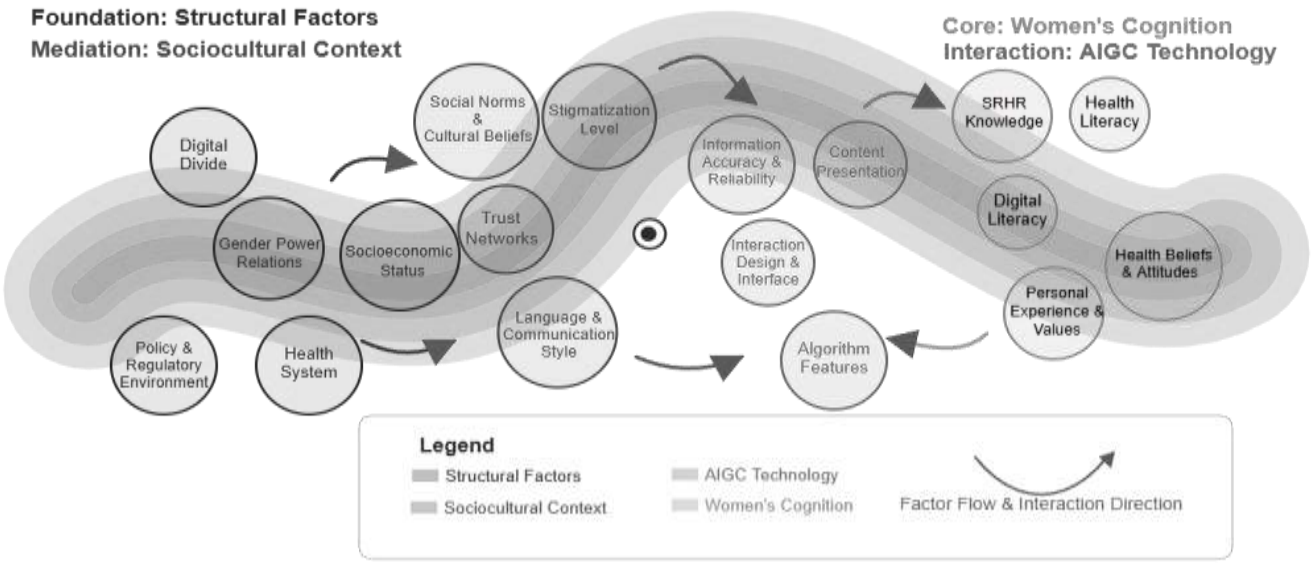

Figure 2: The complex interplay between AIGC technology & content, individual woman's cognition, the mediating sociocultural context, and foundational structural factors in shaping cognitive outcomes related to SRHR.

Table 2: Summary of key recommendations for responsible AIGC Application in SRHR (with implementation priority indicators)

Stakeholder group	Core recommendations	Implementation priority
Technology Developers & Designers	Embrace ethical/equitable design; Deepen co-design/localization; Focus on accessibility/usability; Enhance transparency/trustworthiness.[1, 13, 24, 27, 33, 34]	Medium-Long term (requires capacity building)
Health Systems & NGOs	Integrate AIGC prudently as support; Boost user & provider digital/health literacy; Curate information/ensure quality; Bridge online information & offline services.[27, 31, 40, 42]	Immediate-Medium term (can leverage existing systems)
Policymakers & Funders	Bridge digital (gender) divide; Build adaptive governance frameworks; Support local innovation/research; Promote platform responsibility/transparency.[8, 23, 24, 25, 26, 35]	Immediate (policy/funding) to Long-term (infrastructure)
Research Community	Deepen contextual/interdisciplinary/ethnographic research; Focus on implementation science/impact evaluation; Explore risk mitigation; Develop culturally adapted tools.[24]	Immediate-Ongoing (foundation for all other efforts)

AIGC's capacity to generate convincing but false content at scale exacerbates existing challenges, with particularly severe implications for reproductive health misinformation that can lead to harmful self-treatment or delayed care-seeking.

Synthesizing discussion: contextualizing cognitive impact

These illustrative scenarios, grounded in documented patterns from existing research, make it clear that AIGC's impact on women's SRHR cognition is far from a simple matter of "technology empowerment" or "information transfer." It is a profoundly contextualized, socialized, and negotiated process. As documented in the Nigerian scenario, cognitive trust falters when technical language clashes with local knowledge systems; the South African examples reveal how privacy and consent are practically defined by social relationships and historical experiences; documented interactions in Latin America and Southeast Asia demonstrate how cultural relevance and governance gaps directly shape cognitive acceptance and risk perception.

These patterns collectively paint a complex picture: women are not passive vessels for information but active constructors of meaning. Research consistently shows that they interpret, filter, adopt, or reject information from AIGC (or any other source) based on their own experiences, cultural backgrounds, trust networks (be it offline "sisters" or online group members), and prevailing socio-economic conditions. Their cognitive processes are dynamic, demonstrating agency as they constantly dialogue and weigh "modern" against "traditional," "expert" against "peer," "digital" against "local."

Therefore, the cognitive shifts brought about by AIGC, whether increases in knowledge, shifts in perspective, or the entrenchment of bias must be understood within this specific, dynamic socio-cultural fabric. Crucially, existing research demonstrates that changes at the cognitive level often remain distant from actual improvements in health behavior or outcomes. Studies frequently uncover structural barriers: even if a woman learns about the benefits of a modern contraceptive method via AIGC (a cognitive change), if she cannot afford it, if the clinic is too far, or if, as documented in South African research, she fears breaches of confidentiality or lacks agency due to partner disapproval (structural barriers), this cognitive shift struggles to translate into practical action. This necessitates moving beyond a purely cognitive focus, linking the assessment of AIGC's impact to broader socio-economic empowerment and health system strengthening.

Figure 2 Conceptual model illustrating the complex interplay between AIGC Technology & Content, Individual Woman's Cognition, the mediating Sociocultural Context, and foundational Structural Factors in shaping cognitive outcomes related to SRHR. This model emerged from

synthesis of existing literature and represents theoretical relationships requiring empirical validation in diverse specific contexts.

Discussion

Synthesizing findings: AIGC as a contested space

AIGC holds dual potential for women's SRHR cognition in Africa and Latin America. It promises educational empowerment by overcoming barriers and enhancing accessibility.[31,34] Yet, this potential is constrained by risks: mis/disinformation proliferation,[1,16,22] algorithmic injustices from bias,[23,40,42] privacy threats, and cultural disconnects risk cognitive distortion and exacerbating inequalities.

Our synthesis of existing evidence, contextualized through illustrative scenarios, demonstrates that AIGC's impact is embedded in socio-cultural contexts and digital divide realities. Documented patterns show women actively negotiate information based on existing knowledge, beliefs, trust networks, economic conditions, and emotions towards technology. The digital divide limits access and engagement; cultural differences affect resonance; lack of governance transfers risk. Understanding cognitive impact requires looking beyond technology into the social matrix. Qualitative methods are vital for capturing this complexity.

Acknowledging diversity and guarding against generalization

While this analysis necessarily addresses "Africa and Latin America" as broad geographic regions, we must explicitly acknowledge the profound risk of homogenization inherent in such aggregation. These are not monolithic entities but encompass extraordinary diversity that fundamentally shapes how AIGC technologies are experienced, interpreted, and integrated into women's lives.Within Africa, the technological, economic, cultural, and healthcare landscapes vary dramatically. Digital infrastructure in urban South Africa differs vastly from rural Sahel contexts; Francophone West Africa faces distinct linguistic and institutional challenges from Anglophone East Africa; North African health systems and cultural contexts around SRHR diverge significantly from Sub-Saharan patterns; island nations contend with unique connectivity challenges. Women in Lagos, Nairobi, Cape Town, Addis Ababa, and rural villages across the Sahel inhabit fundamentally different technological, economic, cultural, and healthcare environments. Similarly, Latin America encompasses Caribbean nations with their own colonial legacies and connectivity issues, Andean highland indigenous communities with distinct knowledge systems and languages, Amazon basin populations facing geographic isolation and unique cultural contexts, Southern Cone urban centers with relatively advanced digital infrastructure, and Central American countries navigating particular economic and political realities. Women in Buenos Aires, Lima, rural Guatemala, indigenous Amazonian communities, and Caribbean islands cannot be treated as a unified category.

Moreover, within any single country, enormous variation exists by urban versus rural residence, socioeconomic status and class position, indigenous versus non-indigenous identity, age cohort and generational differences, educational attainment, disability status, migrant or refugee versus settled populations, and religious and cultural backgrounds. These intersecting identities fundamentally mediate how women access technology, encounter health information, evaluate its credibility, and integrate it into decision-making processes. A middle-class urban Kenyan woman with university education experiences AIGC entirely differently from a rural subsistence farmer in the same country; an indigenous Quechua-speaking woman in highland Peru navigates digital health information through entirely different frameworks than a Spanish-speaking professional in Lima.

Our analysis attempts to identify cross-cutting themes and patterns documented across multiple contexts, but we recognize that such synthesis necessarily flattens complexity. The illustrative scenarios, while grounded in documented patterns, cannot capture the full spectrum of experiences across these vast and heterogeneous regions. Findings should be understood as provisional frameworks requiring critical adaptation, not direct transplantation to specific national,

regional, and community contexts. What manifests as a barrier in one setting may be irrelevant in another; what functions as an enabler for one group of women may prove ineffective or even counterproductive for others. We use "Africa" and "Latin America" as necessary geographic shorthand while remaining acutely cognizant of the analytical violence such aggregation can commit. Readers and policymakers must approach these findings with contextual humility, always asking: "Does this pattern hold in my specific context? What local particularities might alter these dynamics?"

Limitations, uncertainties, and the bounds of synthesis research

This study faces several important limitations that shape what can and cannot be claimed from our analysis. As a conceptual synthesis of existing literature rather than primary empirical research, this work inherently lacks the depth, contextual richness, and specificity that systematic ethnographic fieldwork or large-scale survey research would provide. The illustrative scenarios, while grounded in documented experiences from existing research and reports, are composite constructions that cannot capture the full complexity and nuance of individual lived realities. They serve to illuminate theoretical concepts and demonstrate plausible real-world dynamics, but cannot substitute for rigorous systematic empirical investigation of how actual women in specific communities encounter, interpret, and respond to AIGC in their SRHR decision-making.The rapid evolution of AIGC technology presents particular challenges. Analysis conducted through late 2024 and early 2025 may not reflect emerging applications, new risks, or evolving user responses. The lag between research publication and technological deployment means our synthesis necessarily reflects somewhat dated evidence regarding what remains a cutting-edge phenomenon. By the time research on current AIGC tools is published, newer iterations may have emerged with different characteristics and impacts.

Language and geographic biases constrain our synthesis. The review primarily accessed English-language sources, with some Spanish and Portuguese materials included. This potentially misses critical insights from French-language scholarship (significant for Francophone Africa), Arabic-language research (North Africa and Middle East contexts), indigenous language documentation, and regional journals with limited international visibility. Such linguistic bias may systematically skew findings toward Anglophone contexts and internationally visible research, underrepresenting knowledge production from other linguistic and institutional contexts.

Perhaps most troubling is what might be termed the "digital divide in research" itself. Populations most affected by digital divides：rural women, those living in poverty, women with limited formal education, indigenous women, displaced populations—are systematically underrepresented in published research. Academic studies disproportionately access urban, educated, digitally connected populations who are easier to recruit and more likely to participate in research. This creates analytical blind spots precisely where AIGC impacts may be most severe or most different from documented patterns. Our synthesis inherits these gaps from the literature base upon which it draws, meaning we likely understand least about those most vulnerable to both AIGC's harms and exclusion from its potential benefits.

The absence of longitudinal data further limits what can be claimed. Existing research provides predominantly cross-sectional snapshots of technology use and attitudes at single points in time. We lack robust evidence about sustained cognitive impacts of repeated AIGC exposure over months or years, how initial enthusiasm or skepticism evolves with prolonged experience, long-term effects on health behaviors and actual SRHR outcomes (pregnancy rates, contraceptive use, healthcare seeking), or generational differences in adaptation as younger cohorts grow up with these technologies as ubiquitous. Understanding durable impacts requires research designs that follow individuals and communities over time—studies largely absent from the current evidence base.

The nascent state of AIGC deployment in SRHR contexts means much of our analysis extrapolates from research on general digital health information, social media health content, and earlier AI chatbot implementations. Direct research specifically examining current generative AI technologies ： ChatGPTstyle conversational

models, advanced image generation tools, deepfake capabilities，in SRHR contexts in Africa and Latin America remains scarce. Our projections about these technologies' cognitive impacts are necessarily somewhat speculative, informed by research on related but not identical phenomena.

Intersectionality receives insufficient attention in available literature and thus in our synthesis. While we address gender and socioeconomic factors, analysis would benefit from more systematic examination of how AIGC affects women with various disabilities (visual, hearing, cognitive, mobility impairments), sexual and gender minority women who face distinct SRHR challenges and information needs, migrant and refugee women navigating unfamiliar health systems and languages, and indigenous women situated within particular knowledge systems and facing linguistic barriers. These intersecting dimensions fundamentally shape technology access and cognitive impacts but remain underexplored in available evidence.

Our synthesis also lacks systematic incorporation of diverse stakeholder perspectives beyond research participants. We have limited insight into technology developers' perspectives, design intentions, and decision-making processes; healthcare providers' experiences using or recommending AIGC tools to patients; policymakers' reasoning in regulatory and funding decisions; and platform companies' governance considerations and content moderation practices.

A more complete understanding would integrate these viewpoints, which shape the technological landscape women navigate.

Finally, as researchers, we bring particular values and assumptions regarding health equity, women's empowerment, and cultural sensitivity. While striving for analytical rigor, our framing of "opportunities" versus "risks" inherently reflects normative judgments that others might contest. What we frame as "empowerment" others might view as technological dependency; what we identify as "marginalization risk" others might see as market innovation. Readers should critically assess whether our evaluative framework aligns with their own values and contexts rather than accepting it uncritically.Given these limitations, findings cannot be mechanically generalized across diverse contexts. They represent an initial conceptual mapping, identifying plausible dynamics, key tensions, important questions rather than definitive conclusions about AIGC impacts. The study's value lies in framework development, synthesis of scattered insights, and agenda-setting for future research rather than in providing empirically validated conclusions applicable everywhere. Readers should treat findings as hypotheses requiring local validation, critically adapt recommendations to specific contexts rather than implementing them wholesale, use the conceptual framework as a thinking tool while remaining open to context-specific variations, and recognize the urgent need for primary, context-specific research before large-scale AIGC deployments in SRHR domains. We present this work with intellectual humility, acknowledging what we cannot know from existing evidence while offering the best synthesis currently possible to inform responsible technology development and policy in this rapidly evolving domain.

Conclusion

Strategic recommendations for the future

To guide AIGC towards promoting health equity and genuinely empowering women in Africa and Latin America, coordinated and responsible actions are needed from various stakeholders. These recommendations emerge from the synthesis of existing literature and the contextual understanding gained from analyzing documented experiences.

For technology developers and designers

Embrace ethical AI principles (fairness, transparency, accountability, privacy).[34] Employ bias detection/mitigation and diverse data.[23,40] Shift from "one-size-fits-all" to deep co-design and localization with communities, users, health workers, and cultural experts.[25,23] Focus on accessibility and usability for diverse users (low literacy, connectivity issues) through inclusive design.[28] Enhance transparency/trustworthiness (labeling, source tracing, feedback mechanisms).[1,39]

For health systems and non-governmental organizations (NGOs)

Integrate AIGC prudently as a supplementary tool, augmenting human workers. Strengthen health worker capacity (training on use, critical evaluation). Boost user digital/health literacy (critical appraisal, misinformation recognition, cybersecurity).[28,38,41] Curate information/ensure quality (review/certify resources, integrate local knowledge). Bridge online information and offline SRHR services, guiding users to care.[21]

For policymakers and funders

Address the digital divide and promote equitable access (infrastructure investment, policies reducing gender/socio-economic gaps).[23,25,26] Build adaptive governance frameworks (ethical/regulatory guidelines for AI in health, grounded in local values/human rights).[40] Support local innovation/research ecosystems (funding for local R&D addressing regional needs).[25, 35] Promote platform responsibility /transparency (accountability for AIGC, content moderation, algorithmic transparency).[10,40]

For the research community

Deepen contextual, interdisciplinary research, emphasizing ethnography, to understand long-term AIGC impacts across diverse settings.[24] Focus on implementation science/impact evaluation for integrating responsible AIGC in resource-constrained systems. Develop culturally appropriate equity-focused evaluation methods. Explore risk mitigation strategies (misinformation/bias interventions, enhancing critical thinking).

Prioritizing interventions in resource-constrained settings

Given finite resources and urgent needs, we propose a phased implementation approach that prioritizes foundational protective measures before ambitious technological deployment. Immediate priorities for the first twelve months should focus on lower-cost foundational actions that can be implemented relatively quickly within existing systems. These include strengthening health worker capacity to critically evaluate AIGC tools and guide patients appropriately, developing and disseminating simple, accessible user guidelines to help women identify health misinformation, establishing basic content verification protocols within existing health systems, building partnerships between health systems and trusted community organizations for information validation, and creating rapid response mechanisms for addressing viral health misinformation when it emerges.Medium-term investments over one to three years should focus on building sustainable capacity across communities and health systems. This phase involves implementing digital and health literacy programs specifically targeting women and girls, embedded within existing community structures rather than creating parallel systems. It includes establishing community-based peer educator networks trained in digital health information evaluation who can provide ongoing support within communities. During this phase, culturally adapted, locally validated AIGC tools should be developed through participatory co-design processes that genuinely involve end users and local stakeholders. Local language content creation and verification systems must be established to ensure accessibility across linguistic diversity. Pilot programs testing responsible AIGC integration should be implemented with rigorous evaluation to understand what works, for whom, and under what conditions.

Long-term structural changes over three to five years and beyond require systemic transformation to create environments where AIGC can function equitably and beneficially. This includes infrastructure investments to reduce the digital divide through improved connectivity, device access, and reliable electricity—foundational requirements often taken for granted in Global North contexts. Comprehensive regulatory frameworks for AI in healthcare must be developed through genuinely multi-stakeholder consultation processes grounded in local values and human rights principles. Sustainable local AI innovation ecosystems require substantial investment in funding, training programs, and institutional support to enable locally-driven technological development rather than continued dependence on externally developed tools. Regional centers of excellence for culturally appropriate digital health research and development can serve as hubs for knowledge

generation, training, and technical support. Finally, AIGC governance must be integrated into national health information system strategies rather than treated as a separate or add-on concern.

This phased approach recognizes several critical realities. Immediate harm prevention must precede ambitious technological deployment—we cannot allow vulnerable populations to be harmed while waiting for ideal conditions. Community-level, human-mediated interventions often yield faster returns than expensive infrastructure projects in the short term, making them strategically important for near-term impact. Building critical evaluation capacity protects against risks while preserving space for benefits, creating a protective foundation upon which to build. Long-term success requires systemic change, but immediate actions can reduce harm and build foundations that make later interventions more effective. Importantly, local context determines optimal sequencing—what represents an "immediate" priority in one setting with certain infrastructure and institutional capacity may be a "long-term" goal in another context facing different challenges.

Crucially, this approach avoids technology solutionism—the seductive but misguided assumption that technological deployment itself solves social problems. Instead, it prioritizes human capacity, community knowledge, and structural equity as preconditions for beneficial technology integration. Technology can amplify and extend human capabilities, but it cannot substitute for well-trained health workers, educated and empowered patients, functioning health systems, and equitable social structures. The framework recognizes that the most vulnerable women need protective interventions before they need AIGC access, and that creating conditions for safe, beneficial AIGC use requires patience, investment in fundamentals, and resistance to rushed technological deployment driven by commercial or political imperatives rather than community needs.

Future research directions

This conceptual synthesis, while valuable for framework development, cannot substitute for rigorous empirical investigation. Future research must urgently address the gaps identified throughout this paper through systematic, context-specific inquiry that moves beyond the cross-sectional, literature-based approach employed here.

Priority research needs include longitudinal empirical studies documenting how diverse women across Africa and Latin America actually engage with AIGC in SRHR contexts over time, attending carefully to intersectionality and employing participatory methods that position women as co-researchers. Rigorous mixed-methods evaluations of specific AIGC tools deployed in these regions are essential, incorporating cultural adaptation assessments, cost-effectiveness analyses, and examination of both user experiences and health system integration challenges. Design and testing of digital literacy interventions that enhance women's, especially marginalized women's capacity for critical engagement with AIGC information represent another urgent priority. Finally, dedicated research attention to underexplored populations including women with disabilities, LGBTQ+ women, indigenous women, and displaced populations would address critical knowledge gaps. Research should examine not only cognitive impacts but also provider perspectives, platform governance effectiveness in these specific contexts, and comparative insights from other Global South regions to identify transferable lessons while respecting contextual particularities.The rapid deployment of AIGC in health domains is outpacing evidence about impacts. Without rigorous, contextually grounded research, we risk repeating historical patterns where Global North technologies are exported to Global South settings without adequate adaptation, exacerbating rather than alleviating existing inequities. The research community has both an opportunity and an obligation to generate evidence that guides more equitable and beneficial technological development.

Concluding

AI-Generated Content offers unprecedented opportunities to improve women's access to sexual and reproductive health information in Africa and Latin America, yet these are accompanied by profound ethical, social, and cultural challenges.

Technology itself is not the sole determining force; its ultimate impact depends on how we choose to shape and guide it. The path forward is not straightforward. It demands vigilance, a rejection of technological determinism, and a steadfast commitment to placing human dignity, rights, well-being, and equity at the core. Only through deliberate planning, sustained investment, broad collaboration, and a humble listening to and respect for local realities can the power of AIGC be harnessed to truly serve as a tool for the health and empowerment of all women in these regions, rather than a risk that deepens divides and causes harm. This requires a collective effort, undertaken with wisdom, responsibility, and empathy, to ensure that the light of technological progress illuminates every corner where it is needed.

Ethical considerations

The research team affirms that this study, as a synthesis of publicly available literature and reports, did not involve primary data collection from human participants and therefore did not require institutional review board approval. All publicly available sources have been appropriately cited and credited. The illustrative scenarios presented were constructed as composite narratives from documented patterns in existing literature, with care taken to avoid identification of real individuals. Throughout the research process, we maintained commitment to:

Respectful representation of the populations discussed, acknowledging their agency and dignity

Sensitivity to the vulnerability of women in contexts of health inequity and marginalization

Acknowledgment of limitations and caution against over-generalization

Presentation of findings with intellectual humility regarding what can and cannot be concluded from synthesis research

Should this conceptual framework inform future primary research, such work would require full ethical review, free and informed consent from participants, strict data protection measures, cultural sensitivity protocols, and commitment to reciprocity including sharing findings with communities in accessible formats.

Conflict of interests

The authors declare no competing interests.

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Author’s contributions

YW conceived and designed the study. YW, SY, and XL collected and analyzed the data. YW and SY prepared the manuscript. GZ and HC provided critical revisions. All authors approved the final manuscript.

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