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Experiences of Youth and Service Providers with Internet-Based Approaches for Delivering Sexual and Reproductive Health Information in Kinondoni Municipal Council, Dar es Salaam, Tanzania

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Abstract

Introduction

Youth in low- and middle-income countries (LMICs) face limited access to sexual and reproductive health (SRH) information and services, and internet-based approaches are increasingly used to address this gap. This study explored the experiences of youth and service providers in Kinondoni Municipal Council, Dar es Salaam, regarding internet-based delivery of SRH information.

Methods

A phenomenological qualitative design was employed, including 12 in-depth interviews (IDIs) with youth, 4 IDIs with healthcare workers, 3 IDIs with NGO staff, and 2 focus group discussions (FGDs) with 6 participants each (one male, one female). Data were analyzed thematically using NVivo version 14.

Results

Findings are organized into two main themes: (1) service providers' perspectives on internet-based approaches, including perceived benefits, limitations, and preferred platforms; and (2) youths' views on accessibility, effectiveness, and challenges, including preferred digital platforms and content formats, barriers such as cost and misinformation, trust in online sources, and linkage to physical SRH services. Youth emphasized accessibility and interactivity as key enablers, while providers highlighted scalability and confidentiality.

Conclusion

Well-designed internet-based SRH interventions can enhance engagement, complement facility-based services, and support strategies to improve youth access to SRH information and services in Tanzania.

Keywords: *Youth, Sexual Reproductive Health, Internet-based approaches, Digital platforms, Health Information, Dar es Salaam*

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INTRODUCTION

Youth (aged 15–24 years) worldwide continue to face substantial challenges in accessing accurate sexual and reproductive health (SRH) information and services, with declining trends in protective behaviors raising concern (Költő et al., 2024; World Bank, 2023). Between 2014 and 2022, global condom use among 15-year-olds declined from 70% to 61% in boys and 63% to 57% in girls, increasing risks of sexually transmitted infections (STIs), unintended pregnancies, and associated morbidity (Költő et al., 2024). Surveys from low- and middle-income countries (LMICs) show persistently low comprehensive HIV knowledge among young people aged 15–24. A 2021 analysis of Demographic and Health Surveys across 51 LMICs found that only 29% of young women had comprehensive HIV knowledge, defined as correctly identifying prevention methods, rejecting common misconceptions, and recognizing that a healthy person can transmit HIV. Levels among young men are consistently lower, typically around 20–25%, although estimates vary by region and year (Takamatsu & Ono, 2025; Yang et al., 2021).

Against this backdrop, youth frequently engage in high-risk sexual behaviors, including premarital sex, often without perceiving such behaviors as dangerous, even in settings with cultural or religious prohibitions (Jing et al., 2023; Njau et al., 2021; Nkata et al., 2019). Open discussions about SRH between youth and parents or guardians are limited due to socio-cultural taboos, and fears of stigma, discrimination, or potential abuse discourage disclosure of HIV or STI status (Bacchus et al., 2019; NURHI, 2018).

In sub-Saharan Africa, these behavioral and structural barriers contribute to a disproportionate SRH burden among youth (Uka et al., 2024; UNFPA, 2024). Tanzania exemplifies these challenges. The 2022 Tanzania Demographic and Health Survey (TDHS) reports that 22% of teenagers aged 15–19 have begun childbearing, only slightly lower than the 27% reported in 2015/2016 (TDHS-MIS, 2016, 2022). Health facilities often lack youth-friendly services, with only one-third providing privacy or nonjudgmental care, limiting service utilization (Nkata et al., 2019; van Oirschot et al., 2023). Deep-rooted stigma, early marriage, gender inequities, and economic constraints further marginalize vulnerable youth, particularly adolescent girls, who face limited autonomy, heightened transactional sex risks, unintended pregnancies, and STIs (Chow et al., 2024; Hokororo et al., 2015; IHI, 2024; Mbeba et al., 2012; Morris et al., 2025).

To address these challenges, internet-based approaches, including mobile messaging, social media platforms, telemedicine, and personalized applications, have been promoted as promising strategies for delivering SRH information and services. These approaches offer anonymity, scalability, cost-effectiveness, and flexibility, helping overcome stigma, lack of privacy, and geographic barriers (Sao et al., 2023; UNDP, 2021). In Tanzania, digital SRH interventions such as Mobile for Reproductive Health (m4RH) and Afya-Tek provide confidential information and referrals to youth-friendly services (Olsen et al., 2018).

Despite the potential of these digital interventions, evidence on the experiences of youth and service providers with internet-based SRH approaches remains limited, particularly regarding perceived benefits, barriers, preferences, and integration with facility-based services. Understanding these experiences is critical to optimize digital interventions, improve uptake, and guiding policy and programmatic investments. Therefore, this study aimed to explore the experiences of youth and service providers regarding internet-based approaches to delivering SRH information in Kinondoni District, Dar es Salaam, Tanzania, focusing on perceived advantages, challenges, and recommendations to improve access and engagement.

METHODS

Study Design

A phenomenological study design was employed to study the experience from the perspective of the individual (McLeod, 2024). Through taking-for-granted assumptions and usual ways of perceiving it, based on their perspectives and the descriptions provided by people involved, a phenomenological study design examines human experiences, which are called lived experiences (McLeod, 2024). Therefore, the youth's and service providers' lived experiences with internet-based approaches to accessing SRH information will provide an opportunity to understand their perspectives and preferences.

Study Area

The study was conducted in the Kinondoni Municipal Council (MC), Dar es Salaam. Kinondoni MC comprises 20 wards located in both urban and peripheral areas, in which a sample of youth was obtained. 1,375,562 people live in the district; 19% are youth aged 18 to 24 (NBS/OCGS, 2022). Studies reveal that only 33% of sexually active youth use traditional SRH services, hindered by issues such as stigma, lack of privacy, and non-youth-friendly service environments (Mwandali et al., 2020). Additionally, 61% of youth are sexually active while contraceptive use remains low and STI/HIV counseling uptake is minimal, increasing the risk of adverse outcomes like teenage pregnancies and unsafe abortions (Mwandali et al., 2020). Kinondoni presents a unique opportunity for digital health interventions due to its robust internet infrastructure (Manyerere, 2021), enabling researchers to explore online platforms to overcome traditional barriers to SRH access, despite challenges such as

limited smartphone ownership and high internet costs.

Study Population

Three study populations were used in this study: the first one comprised youth living in the Kinondoni MC. Youth is defined by the United Nations as anyone aged 15 to 24 (World Bank, 2023). By default, participants were 18–24 years old, as younger adolescents (15–17) often lacked access to smartphones or social media platforms necessary to meet eligibility. The second group was the health care workers (HCWs) from public and private health facilities in Kinondoni. The third group included staff from non-governmental organisations (NGOs) that implement programs on youth sexual and reproductive health, mostly through digital approaches.

Sample Size and Sampling Technique

Participants were selected purposively to obtain in-depth, information-rich accounts of experiences with internet-based SRH information. Maximum variation sampling was applied to include diverse participant groups, namely youth of different genders and ages, healthcare workers (HCWs), and staff from non-governmental organisations (NGOs) involved in youth SRH programming. Youth were eligible if they were aged 15–24 years, had resided in Kinondoni Municipal Council for at least one year, and had prior exposure to internet-based platforms used to access health or social information. Youth who were critically ill, unable to communicate effectively, or unwilling to provide informed consent were excluded. HCWs and NGO staff were eligible if they were currently involved in providing or managing youth SRH services or digital SRH interventions in Kinondoni, while those without direct engagement in youth SRH programming were excluded. Recruitment was conducted purposively by trained research assistants (RAs), with support from Community Health Workers (CHWs) for FGD coordination.

In total, 21 qualitative data collection events were conducted, comprising 19 in-depth interviews (IDIs) and 2 focus group discussions (FGDs). These included three IDIs with NGO staff, four IDIs with HCWs, and twelve IDIs with youth conducted across different areas of Kinondoni. Two FGDs were conducted at Magomeni Health Center, one with male youth and one with female youth, each consisting of six participants. The sample size was guided by qualitative methodological principles, where adequacy is determined by data richness and thematic saturation rather than numerical representativeness. Methodological literature indicates that phenomenological and thematic qualitative studies commonly involve approximately 5–25 interviews, with a limited number of FGDs when the objective is depth rather than subgroup comparison (Guest et al., 2006; Vasileiou et al., 2018). Two FGDs were sufficient to capture gender-specific perspectives, and iterative analysis indicated that additional interviews or FGDs were unlikely to generate substantially new themes, indicating attainment of conceptual saturation.

Data Collection Procedures

Data were collected using semi-structured interview guides developed in English, translated into Kiswahili, and piloted with youth and one HCW to ensure clarity and relevance. IDIs were conducted in private locations, including workplaces, playgrounds, and university campuses, while FGDs were held at Magomeni Health Center. Interviews averaged 30 minutes (IDIs) and one hour (FGDs). All interviews were audio-recorded with participant consent. Recruitment and coordination were conducted by trained research assistants, with CHWs supporting FGDs.

Trustworthiness

To ensure trustworthiness, the study applied the widely recognized qualitative criteria of credibility, dependability, confirmability, and transferability (Lincoln et al., 1985; Nowell et al., 2017). Credibility was enhanced through prolonged engagement with participants during interviews and FGDs, pilot testing of the interview guides, and triangulation across three participant groups (youth, healthcare workers, and NGO staff) to capture diverse perspectives. Dependability was supported by maintaining a detailed audit trail that documented all research procedures, recruitment strategies, data collection, and analytical decisions, ensuring transparency and logical traceability. Confirmability was strengthened through collaborative coding and consensus discussions among the research team, along with the use of a reflexive journal to account for the researchers' positionality and potential biases. Finally, transferability was addressed by providing rich contextual descriptions of the study setting, participant characteristics, and internet-based SRH interventions, enabling readers to evaluate the applicability of findings in similar contexts.

Data Management

All interviews and focus group discussions were audio-recorded using a digital recorder with participant permission. Transcription from Kiswahili to English was conducted manually by the principal investigator and the RAs after data collection was completed. Transcription was intelligent (edited) rather than fully verbatim, because the study aimed to preserve the meaning and content of participants' responses without altering substantive information, while removing non-essential verbal fillers (e.g., "like," "you know"), stammering, and non-verbal sounds that do not contribute to interpretive analysis. Intelligent transcription is appropriate in qualitative thematic research when the focus is on capturing conceptual content and meaning rather than linguistic form, and it enhances analytic clarity without losing meaning (Halcomb & Davidson, 2006; Poland, 1995).

The transcription process was undertaken after all data collection was completed, allowing the research team to focus first on building rapport and listening depth during interviews. Transcribing after data collection also supported iterative reflection on themes that emerged across interviews, which informed analytical rigour. Transcribed files were cross-checked by both the principal investigator and assistant researcher to enhance consistency and accuracy. All original

audio files were backed up on an encrypted external hard drive, and transcripts were stored on a password-protected computer to maintain confidentiality and data security. Only authorized research team members had access to the stored data.

Data Analysis

Data were analysed using thematic analysis (Braun & Clarke, 2006; Özden, 2024) to identify patterns of meaning across participants' experiences with internet based SRH approaches. Thematic analysis was selected because it allows comparison of shared and divergent experiences across heterogeneous groups, unlike Interpretative Phenomenological Analysis (IPA) (Bloor et al., 2001; Braun & Clarke, 2006; Smith & Osborn, 2015), which focuses on detailed analysis of small, homogeneous samples.

All transcripts were read repeatedly by the lead researcher and assistant to ensure familiarisation. A descriptive, research-question-driven coding approach was applied, generating 52 initial codes under parent codes aligned with the three research questions. Codes were then grouped conceptually into eight final themes, which were further organized into two major categories reflecting the study groups: (1) service providers' perspectives on internet-based approaches, and (2) youths' views on accessibility, effectiveness, and challenges. Sub-themes were developed under each category to capture specific dimensions of participants' experiences. Coding and theme development were conducted collaboratively, with discrepancies resolved by consensus. NVivo version 14 was used solely for data organization and retrieval, while all analytic decisions, including code generation, clustering, and theme labeling, were made by the research team. Themes were finalized once conceptual saturation was reached, as no new themes emerged from additional interviews or FGDs.

Ethical considerations

Ethical clearance to conduct the study was sought from the Muhimbili University of Health and Allied Sciences Ethical Review Board through the Directorate of Research and Publication by submitting the study proposal for review. Approval was granted (MUHAS-REC-06-2023-1768). Permission to conduct the study in Kinondoni District was provided by the Dar es Salaam Regional Administrative Secretary and the Executive Director of Kinondoni District Council. Specifically, permission to conduct the study in health facilities was granted by the District Medical Officer (DMO), while permission to conduct the study in NGO offices was granted by their Program Leads. Every step was taken to protect human rights, including ensuring confidentiality, privacy, and protection from harm. Interviews were conducted in safe and comfortable settings, and participants were informed that participation was voluntary. All the participants in this study were adults; therefore, written informed consent was obtained after they reviewed the consent form and had an opportunity to ask questions.

RESULTS

This study explores the experiences of youth and service providers regarding internet-based approaches for delivering SRH information and services. The findings are organized into two major themes: service providers' perspectives on internet-based approaches and youths' views on their accessibility, effectiveness, and challenges. Each theme is further divided into sub-themes for clarity.

Characteristics of the Study Population

Data were collected through 19 in-depth interviews (IDIs) and 2 focus group discussions (FGDs). The IDIs included 12 youth, 4 healthcare workers (HCWs), and 3 implementing partners (IPs)/NGO staff. In addition, the 2 FGDs included 6 male youth and 6 female youth, totaling 12 youth participants. Therefore, the overall sample of 31 participants comprises both the IDI and FGD participants. Demographic characteristics of the IDI participants are summarized in Table 1.

Table 1: Demographic Characteristics

Characteristics	Youth (IDIs, n =12)	Service Providers (IDIs, n = 4)	NGO/ Ips (IDIs, n = 3)
Sex			
Male	6	3	2
Female	6	1	1
Age group (years)			
18–19	3	–	–
20–24	9	–	–
Education level			
Primary	2	–	–
Secondary	6	–	–
College/University	4	–	–
Marital status			
Single	9	–	–
Married	3	–	–
Type of facility			
Public	–	2	–
Private	–	2	–
Work experience (years)			
< 5 years	–	1	1
6–10 years	–	1	0
> 10 years	–	2	2

Footnote: IDIs = In-depth interviews. NGO = non-governmental organization. Youth focus group discussions (two FGDs, one male and one female, each with six participants) are described in the text but not included in this table, which summarises IDI participants only.

Theme 1: Service Providers' Perspectives on Internet-Based SRH Approaches

Internet as a Primary Source of SRH Information for Youth
Service providers consistently described the internet as a dominant source of SRH information for young people, often complementing or replacing facility-based sources. Providers noted that youth actively seek SRH information through social media platforms and health-related websites, particularly before contacting health facilities.

“Apart from health facilities, the internet is a major source of SRH information. There are websites and even social media platforms where youth seek guidance” (NGO1).

This perception was shared across provider categories, reflecting a common understanding that digital platforms have become embedded in youths’ health-seeking behaviors.

Perceived Benefits and Limitations of Internet-Based SRH Delivery

Providers emphasized several advantages of internet based SRH approaches, including wide reach, convenience, privacy, and rapid access to information. Healthcare workers noted that many youths arrive at facilities with prior knowledge obtained online.

“Youth nowadays are technically active and can just Google information on the internet. Many already have knowledge before they even come to us” (HCW3).

Despite these benefits, providers raised concerns about misinformation and digital exclusion. NGO staff highlighted that internet-based solutions risk excluding youth from low-income households or rural settings who lack smartphones or reliable connectivity.

“The internet solution must be accompanied by non-digital alternatives to ensure that youth without smartphones or internet access are not left behind” (NGO2).

These accounts illustrate a shared recognition that digital SRH approaches should be integrated with offline services rather than implemented as stand-alone solutions.

Platform Preferences and Design Considerations

When discussing optimal platforms, service providers recommended leveraging existing social media platforms rather than developing entirely new systems. They emphasized that platform diversity is necessary to match varied youth preferences.

“I would integrate SRH information into existing platforms because youth have different preferences. Some like Instagram, some like Facebook” (HCW3).

At the same time, some providers supported the idea of a dedicated SRH website that could offer structured, verified information and interactive features.

“A website where youth can create accounts and access tailored SRH information would be more structured and reliable” (HCW2).

Theme 2: Youths’ Experiences with Internet-Based SRH Information

Youth Understanding of Sexual and Reproductive Health

Youth participants demonstrated a practical understanding of SRH, commonly linking it to pregnancy prevention, STI prevention, and access to reproductive health services. Both male and female participants framed SRH in terms of risk avoidance and self-protection.

“Avoiding unexpected pregnancies and sexually transmitted diseases by using protection methods like condoms, pills, and implants” (Youth FGD1–M).

Female youth additionally emphasized testing and health awareness.

“SRH is the education given about reproduction, testing to know one’s health status, and understanding how to prevent infections” (Youth7).

Platform Preferences and Engagement Styles

Youth reported using multiple digital channels to access SRH information, including Google searches, social media platforms, WhatsApp groups, and mobile applications. Menstrual tracking applications such as Flow and My Calendar were particularly valued by female participants.

“I downloaded an app called Flow. It helps track menstrual cycles and provides reminders” (Youth7).

WhatsApp groups emerged as important peer-to-peer learning spaces, especially for female youth.

“I was added to a WhatsApp group focused on educating female youth. I learned about testing, STIs, family planning, and condom use” (Youth FGD2–F).

Male youth more commonly described using Google to search for specific SRH topics, such as condom use.

“I searched on Google about the uses of condoms. I wanted to know how to use them properly” (Youth4).

Youth engagement with online SRH content was strongly influenced by format and presentation. Participants reported low tolerance for text-heavy materials and expressed a clear preference for short, visually engaging content.

“For us youth, when we search for something online and see a long paragraph, we just skim the headlines and move on. Short videos would be more engaging” (Youth FGD1–M).

Barriers to Accessing and Using Internet-Based SRH Information

While youth acknowledged the usefulness of internet-based approaches, they also highlighted several challenges. The most prominent issues included the high cost of internet data, distractions from unrelated notifications, language barriers, and misinformation. One participant expressed frustration with conflicting online information, stating:

'There are so many different pieces of information on the same topic, and it's confusing. One source says one thing, and another contradicts it' (Youth 8).

Economic constraints were a recurrent concern, particularly among youth with limited income.

"The cost of internet bundles is a big issue. Searching for SRH information requires data, and sometimes I run out before I even find what I need" (Youth 12).

These challenges limited sustained engagement with online SRH content and reduced trust in some digital sources.

Building Trust in Internet-Based SRH Platforms

Trust emerged as a critical determinant of youths' willingness to use online SRH platforms. Participants emphasized the importance of official recognition and regulatory oversight.

"If an SRH website is linked to the Ministry of Health, people will trust it more" (Youth1).

Youth also suggested formal registration or licensing of digital SRH platforms to reduce misinformation.

"Platforms should be registered with TCRA to guarantee accuracy and legitimacy" (Youth4).

Linking Digital Information to Physical SRH Services

Youth strongly emphasized that internet-based approaches should be connected to physical health services. They recommended digital referral mechanisms, including contact details for nearby facilities and SMS reminders.

"There should be a system where users receive SMS referrals to the nearest health facility for services" (Youth FGD1–M).

These suggestions reflect youth preferences for integrated digital-to-facility pathways rather than information-only platforms.

Recommendations for Improving Internet-Based SRH Approaches

To improve internet-based SRH information delivery, youth recommended integrating SRH content into widely used social media platforms while ensuring accessibility and reliability. They preferred short videos and audio content over text-heavy materials. One participant explained,

"For us youth, when we search for something online and see a long paragraph, we just skim the headlines and move on. Short videos would be more engaging" (FGD 1).

DISCUSSION

This study explored the experiences of youth aged 18–24 and service providers with internet-based approaches for delivering sexual and reproductive health information in Kinondoni, Dar es Salaam. Three main findings emerged. First, healthcare workers see digital platforms as a valuable way to expand access, maintain privacy, and provide timely SRH information. Second, youth actively engage with multiple online channels, including WhatsApp, Instagram, TikTok, and Google, and they prefer short, interactive, and entertaining content. Third, several barriers limit engagement, including data costs, misinformation, language barriers, notification distractions, and trust in online sources. Gender differences were also apparent: female youth favored structured apps and organized groups, while male youth relied more on informal searches and peer-driven platforms.

Perceived Usefulness and Reach of Digital SRH

Healthcare providers in this study highlighted the ability of internet-based approaches to reach a broad audience, particularly youth who may be reluctant or unable to access facility-based services. They emphasized the potential of these platforms to deliver information confidentially, at times convenient for the user, and to provide tailored guidance on sensitive topics. Providers suggested using a combination of dedicated websites, social media platforms such as Instagram and Facebook, and peer-led WhatsApp groups to increase engagement and ensure content reaches different youth segments. These perspectives align with evidence from Sub-Saharan Africa showing that digital SRH interventions can effectively expand access in both urban and rural areas, enhance privacy, and increase timely uptake of reproductive health information (Logie et al., 2020; Ochieng et al., 2022). The findings also underscore that platform reach alone is insufficient; integrating trusted endorsements, interactive content, and links to physical services is crucial to sustain engagement and ensure that online interactions translate into practical health outcomes. This combination of reach, confidentiality, and integration can strengthen youth SRH programs, informing policy and digital health strategies to improve access and equity.

Gendered Patterns of Digital SRH Use

Female participants demonstrated strong awareness of SRH topics, likely shaped by ongoing government and NGO programs, including structured digital initiatives such as those run by Girl Effect, TAYOA, and FEMINA. They favored mobile applications like My Calendar and Flow, as well as dedicated WhatsApp groups. This aligns with research from other LMIC contexts, where girls and young women commonly seek sensitive health information online via platforms such as Google, YouTube, and WhatsApp because these channels offer privacy and anonymity unavailable in face-to-face services (Uhawenimana et al., 2023). Qualitative studies in Kenya further show that women and their social networks prefer accessing family planning

content through both formal and informal digital spaces, especially when these spaces feel safe and supportive for discussing reproductive health matters (Zinke-Allmang et al., 2022).

Systematic reviews of digital SRH tools indicate that social media, mobile apps, and interactive platforms are effective in increasing SRH knowledge and engagement among youth, even if gender-specific comparisons are not always consistently reported (Alhassan et al., 2025).
Male participants, by contrast, were more likely to use Google searches, informal platforms such as Naweza, and social media influencers. These patterns suggest that digital interventions should combine structured content and peer-led channels to meet the needs of both genders. Across participants, family planning and pregnancy prevention remained the most sought-after topics.

Barriers to Digital SRH Access
Youth identified several obstacles that limit the usefulness of internet-based approaches. High data costs were a major concern, particularly for those who rely on caregivers for internet access, creating inequities in access to timely SRH information. Notification distractions, language barriers, and low digital literacy further constrained engagement, especially among younger or less tech-savvy users. Service providers also noted the risk of misinformation, emphasizing the importance of credible sources and officially branded platforms to foster trust. These findings are consistent with research from other LMICs, which reports that cost, literacy, and credibility are recurring barriers to digital health engagement. For example, studies in Sub-Saharan Africa highlight that youth often struggle to differentiate reliable health content from misinformation online, and financial constraints can limit consistent access to mobile data and apps (Linzi, 2015; WHO, 2020).Together, these insights underscore the need for interventions that combine affordable access, language-appropriate content, user-friendly design, and clearly trusted platforms. Integrating digital tools with physical SRH services, such as via SMS reminders or referral systems, could further mitigate these barriers and ensure that online engagement leads to meaningful health outcomes.

Preferred Platforms and Engagement Styles
Youth in this study expressed clear preferences for interactive and engaging digital formats rather than long text. Short, visually rich content such as videos, audio, and interactive Q&A features were seen as more appealing and easier to engage with than static text. Research from sub-Saharan Africa shows that young people value convenience, privacy, and easy interaction when using mobile platforms for SRH, and these preferences often lead them to choose services that feel more social and engaging rather than static information pages (Alhassan et al., 2025). In rural LMIC settings, young users often rank interactive features such as two-way messaging and voice responses higher than one-way text messaging or non-interactive content, reflecting a desire for dialogue and real-time engagement with peers or trusted sources (Laar et al., 2024). This pattern suggests that formats that foster peer-to-peer interaction and discussion can enhance both engagement and continued use of digital SRH platforms, aligning with youth priorities for accessibility, confidentiality, and practical relevance.
Platforms such as WhatsApp, Instagram, Facebook, and mobile applications were highlighted as particularly useful for delivering SRH content, especially when combined with credible endorsement or linkage to recognized health authorities to build user trust. Youth suggested that these platforms should be integrated with referral systems that connect users to physical health services, for example, through SMS reminders or direct links to clinics, to strengthen continuity of care and ensure that online engagement leads to real-world access to services. This dual focus on usability and service linkage reflects broader findings that digital channels are most effective when they combine ease of use with practical support for health-seeking behavior (Laar et al., 2024).

Implications for Program Design and Policy
Our findings add to growing evidence that digital SRH interventions must be designed around young people's real preferences and needs rather than simply pushing traditional health content online. Evidence from systematic reviews and qualitative studies in LMICs shows that young people value convenience, privacy, and interactive features when accessing SRH information through mobile platforms, and that engagement improves when platforms feel easy to use and relevant to daily life (e.g., preference for interactive features in SMS and mobile apps compared to one-way messaging). Platforms that incorporate two-way or interactive functions and multimedia content tend to be more effective at increasing knowledge and engagement than unidirectional text approaches (Alhassan et al., 2025).
Program designers should therefore blend structured SRH content with informal, peer-led channels like WhatsApp and social media, where youth already interact daily and feel comfortable. Integrating short, engaging formats such as videos, audio messages, quizzes, and simple navigation can help sustain attention and encourage repeat use, as interactive and gamified approaches have shown better engagement and knowledge gains among young audiences in African settings (Alhassan et al., 2025).
Affordability and digital literacy remain major barriers. Interventions must consider data costs and varying digital skills among users, and link digital engagement to trusted health services. For example, combining digital referral systems (SMS reminders or direct links to facilities) with platforms endorsed by credible health authorities can reinforce trust and encourage real-world service use. This combination of digital access, relevance, and trust aligns with findings across LMIC digital health literature, emphasizing that technology must work with, not replace, existing health systems to improve equity and outcomes (Laar et al., 2024).

Integration with Existing Literature
This study reinforces prior evidence that digital approaches

can broaden SRH access by providing privacy, scalability, and tailored information, particularly among urban youth (Huang et al., 2022; Onditi, 2018). Beyond confirming these advantages, our findings highlight important nuances. Female youth showed a preference for structured, app-based interventions and organized WhatsApp groups, reflecting a need for privacy and guided content, while male youth tended to use informal platforms, Google searches, and social media influencers, suggesting that digital interventions must accommodate both structured and flexible engagement modes. These gendered patterns align with studies from other LMIC contexts where girls and young women prioritize confidential online SRH information, whereas boys often rely on more accessible, informal sources (Uhawenimana et al., 2023; Zinke-Allmang et al., 2022).
The study also underscores the importance of interactive, peer-driven engagement strategies. Youth emphasized short videos, audio content, and Q&A features as more appealing than text-heavy materials. Such approaches have been shown to enhance retention, learning, and repeated use in similar digital health interventions (Alhassan et al., 2025). Linking digital platforms to physical health services through SMS reminders or referral systems further strengthens the practical utility of online engagement, ensuring that information-seeking translates into real-world SRH service uptake. These findings suggest that well-designed digital interventions should integrate trusted content, multiple platforms, and interactive formats to maximize both reach and effectiveness.

IMPLICATION OF THE STUDY

The findings suggest that digital SRH interventions for youth should prioritize interactive, multimedia-based content rather than text-heavy information formats. Participants consistently preferred short videos, audio messages, interactive question-and-answer features, and peer-supported platforms such as WhatsApp groups. Program implementers may therefore benefit from integrating SRH content into widely used digital platforms while ensuring that information remains accurate, engaging, and responsive to youth needs. The findings also highlight the importance of linking digital platforms with youth-friendly health services through referral mechanisms and service information to support the transition from information seeking to service utilization.

The study further highlights structural and contextual factors that influence engagement with internet-based SRH information. High internet costs, concerns about misinformation, and the need for trusted sources emerged as important barriers. Strengthening the credibility of digital SRH platforms through collaboration with recognized health authorities and ensuring content is available in Kiswahili may improve trust and accessibility. The findings also suggest potential differences in platform preferences between male and female youth, indicating that a range of communication approaches may be needed to reach diverse audiences effectively.

For research, the study demonstrates the need for further investigation of digital SRH interventions among rural populations and younger adolescents who were underrepresented in this study. Future research should evaluate the effectiveness of specific digital approaches in improving SRH knowledge, service uptake, and health outcomes, using longitudinal, experimental, or mixed-methods designs. Economic evaluations may also help identify sustainable approaches for scaling digital SRH interventions in Tanzania.

CONCLUSION

This study provides new insights into the experiences of youth and service providers in Kinondoni regarding internet-based approaches for delivering sexual and reproductive health (SRH) information. Youth valued platforms that are interactive, private, and culturally relevant, such as WhatsApp, Instagram, and TikTok, while providers emphasized the need for credibility and integration with youth-friendly services. These findings highlight the importance of designing digital SRH interventions that reflect both youth preferences and provider guidance.

Based on participants' experiences, we recommend piloting Ministry of Health-endorsed WhatsApp and Instagram channels with zero-rated or subsidized access, embedding referral links to clinics, and co-designing content with youth influencers to increase engagement. Hybrid models that link online platforms with youth-friendly health services can ensure inclusion of those with limited digital access. Addressing barriers such as misinformation and affordability requires targeted strategies grounded in youth feedback rather than broad, abstract calls for cooperation.

STUDY LIMITATIONS

This study focused on youth in Kinondoni District, an urban area with relatively high internet penetration. Consequently, participants may overrepresent tech-savvy youth, potentially understating challenges faced by those in low-connectivity or rural regions. Although the study intended to include youth aged 15–24 years, most participants were aged 18–24 by default. This likely reflects the eligibility criteria, as younger adolescents often lacked access to smartphones or social media platforms and therefore could not participate. Future studies should aim to include younger adolescents using alternative recruitment strategies or offline methods.

The sample size was relatively small (21 participants across 2 FGDs), and participants were purposively selected, limiting generalizability. To mitigate this, maximum variation sampling was applied across gender, age, and stakeholder groups to capture a broad range of perspectives. Additionally, self-report bias may have influenced responses, particularly regarding sensitive sexual behaviors; this was mitigated through confidential interviews and safe, private data collection settings.
Finally, the transcription and translation process, conducted from Swahili to English, may have led to a subtle loss of meaning or nuance. Mitigation strategies included intelligent

transcription, cross-checking by multiple researchers, and member checking to ensure credibility and confirmability of the data. While these steps strengthen trustworthiness, the findings should be interpreted with caution and contextualized to similar urban, internet-accessible youth populations.

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CONFLICT OF INTERESTS
None of the authors has any competing interests.

AUTHORS' CONTRIBUTIONS
JK contributed to the conceptualization, data curation, formal analysis, investigation, methodology, and project administration. MJE and RA supervised the study. JK wrote the original draft, and MJE, RA, SJM, and IHM reviewed and edited the manuscript. All authors read and approved the final manuscript.

DATA AVAILABILITY
All study data and related materials are available from the corresponding author upon request.

LIST OF ABBREVIATIONS
CHW - Community Health Worker
DMO - District Medical Officer
FGD - Focus Group Discussion
HCW - Healthcare Worker
HIV - Human Immunodeficiency Virus
IDI - In-Depth Interview
IPA - Interpretative Phenomenological Analysis
LMIC - Low- and Middle-Income Country
m4RH - Mobile for Reproductive Health
MC - Municipal Council
MUHAS - Muhimbili University of Health and Allied Sciences
NBS/OCGS - National Bureau of Statistics / Office of the Chief Government Statistician
NGO - Non-Governmental Organization
RA - Research Assistant
SMS - Short Message Service
SRH - Sexual and Reproductive Health
STI - Sexually Transmitted Infection
TAYOA - Tanzania Youth Alliance
TCRA - Tanzania Communications Regulatory Authority
TDHS - Tanzania Demographic and Health Survey
UNDP - United Nations Development Programme
UNFPA - United Nations Population Fund
WHO - World Health Organization

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