FEATURE

The Impact of Digital Health Interventions on Improving Adolescent Sexual and Reproductive Health in Sub-Saharan Africa

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Introduction

In the rapidly evolving landscape of health care, digital interventions have emerged as a powerful tool to address the pressing sexual and reproductive health rights (SRHR) and needs of adolescents in sub-Saharan Africa. As a researcher and advocate deeply invested in this field, I argue that these technological solutions offer unprecedented opportunities to overcome long-standing barriers and empower young people to take control of their sexual and reproductive health. However, we must approach this digital revolution with both optimism and caution and ensure that interventions in relation to them truly serve the needs of the most vulnerable youth.

Adolescent sexual health: where curiosity meets chaos, and no one reads the manual

The state of adolescent SRHR in sub-Saharan Africa remains a critical concern. Despite progress in recent years, the region continues to grapple with high rates of unintended pregnancy, sexually transmitted infections, and HIV among young people. According to UNICEF, approximately 3.1 million adolescents and young people in Eastern and Southern Africa were living with HIV in 2023, with girls disproportionately affected (UNICEF 2021). These stark figures underscore the urgent need for innovative approaches to reach and engage youth with accurate information and essential services.

Harnessing Technology for Health Solutions

Digital health interventions, ranging from mobile apps and SMS-based services to social media campaigns and online counselling platforms, have shown promising results in addressing these challenges. Such tools leverage the increasing penetration of mobile phones and internet access across the continent to deliver tailored, youth-friendly SRHR information and services directly to adolescents' fingertips.

One of the most significant advantages of digital interventions is their ability to overcome the stigma and privacy concerns that often prevent young people

❝ **The Covid-19 pandemic further underscored the importance of digital health solutions.**

from seeking SRHR information and services in traditional healthcare settings. Through anonymous online platforms, adolescents can access confidential advice, ask sensitive questions, and receive accurate information without fear of judgment or reprisal. This anonymity is particularly crucial in conservative societies where discussing sexual health remains taboo.

The organisation mHealth Kenya offers mobile health interventions to young people and adolescents that exemplify how mobile phones can be used to inform youths about sexual health. This SMS-based programme provides young people with information on contraception and sexual health, resulting in increased knowledge and improved attitudes towards family planning among participants (Hightow-Weidman et al. 2018). Such initiatives demonstrate how digital tools can effectively bridge the information gap and empower youth to make informed decisions about their sexual and reproductive health.

Moreover, digital platforms offer unprecedented opportunities for peer-to-peer learning and support. Social media and online forums allow adolescents to connect with peers facing similar challenges, share experiences and offer mutual support. This peer-driven approach can be particularly effective in promoting behaviour change and challenging harmful social norms around sexuality and gender.

Importantly, these digital health interventions should align with international and regional norms. General Comment No. 25 of the Committee on Economic, Social and Cultural Rights highlights the need for accessible scientific and technological advancements in health (para 16). It emphasises that health services, including digital ones, must be non-discriminatory and inclusive (para 19) and underscores the obligation to provide comprehensive sexual and reproductive health services through digital technologies (para 22). It also notes the role of technology in disseminating information about sexual health rights and services (para 27). In addition, General Comments Nos. 1 and 2 of the African Commission on Human and Peoples' Rights likewise provide guidance on the use of technologies in promoting health rights.

Ethical Considerations in Digital Health Interventions

However, as we embrace these digital solutions, we must also acknowledge and address their potential pitfalls. The digital divide remains a significant concern in sub-Saharan Africa, with many rural and low-income youth lacking access to smartphones or reliable internet connectivity. There is a real risk that digital health interventions could exacerbate existing inequalities if not implemented thoughtfully and inclusively.

To this end, I advocate for a multi-pronged approach that combines digital interventions with traditional outreach methods to ensure that no young person is left behind. This could involve setting up community internet hubs, distributing low-cost mobile devices preloaded with health information, or integrating digital health education in school curricula. Telemedicine, which uses a combination of SMS reminders and visits by community health workers to improve immunisation rates, offers a compelling model of how digital and in-person interventions could be combined effectively (GSMA 2021)

Privacy and data security represent another critical concern. As we collect sensitive health information from vulnerable young people, we have an ethical and human rights obligation to ensure this data is protected from misuse or breaches. Implementing robust data protection measures and educating users about online safety must be integral components of any digital health initiative.

We must also be cautious about the quality and accuracy of information disseminated through digital platforms. The internet is rife with misinformation about sexual and reproductive health, which can have dangerous consequences for young people. As we advocate for digital health rights, states and other policy makers of digital health interventions have a responsibility to ensure that the information they provide is evidence-based, culturally appropriate, and regularly updated.

The Future of Sexual and Reproductive Health in Sub-Saharan Africa

The role of governments and policymakers in supporting and regulating digital health interventions cannot be overstated. While NGOs and private sector entities have led many successful initiatives, sustainable and scalable impact requires government buy-in and support.

As such, policymakers must work to create enabling environments for digital health innovation, including by developing clear regulatory frameworks, investing in digital infrastructure, and integrating digital health strategies in national health plans. The World Health Organization provides a valuable framework for countries to develop and implement comprehensive digital health strategies (WHO 2021). Sub-Saharan African nations should leverage this guidance to develop context-specific plans prioritising adolescent SRHR needs.

As we look to the future, the potential of artificial intelligence (AI) and machine learning to enhance digital health interventions is exciting. These technologies could enable more personalised health recommendations, predict individual risk factors, and even assist in the early diagnosis of STIs or other reproductive health issues. However, as we explore these advanced technologies, we must remain vigilant about ethical and human rights considerations, including algorithmic bias and the potential for AI to perpetuate or exacerbate existing health inequities.

The Covid-19 pandemic further underscored the importance of digital health solutions. With lockdowns and social distancing measures restricting access to traditional healthcare services, digital platforms became lifelines for many young people seeking SRHR information and support. The global crisis accelerated the adoption of telemedicine and other digital health tools, creating an opportunity for this momentum to be built on and digital solutions to be further integrated into mainstream healthcare delivery.

However, it is crucial to recognise that digital interventions are not a panacea for all adolescent SRHR challenges in sub-Saharan Africa. Deep-rooted issues such as gender inequality, poverty, and harmful cultural practices continue to impact young people's sexual and reproductive health outcomes. Digital tools should be seen as part of a comprehensive approach that also addresses these underlying social determinants of health.

Moreover, we must ensure that digital interventions do not inadvertently replace face-to-face interactions and hands-on care where they are needed. For instance, while online counselling can provide valuable support, it cannot substitute for in-person clinical services for contraception, STI testing, or prenatal care. The goal should be to use digital tools to complement and enhance existing health services, not replace them entirely.

To truly harness the potential of digital health interventions for adolescent SRHR in sub-Saharan Africa, we need a coordinated effort involving governments, NGOs, tech companies, healthcare providers, and, most importantly, young people themselves. Youth engagement should be at the heart of designing, implementing, and evaluating these interventions. After all, who is better to inform the development of youth-friendly digital health solutions than the young people they aim to serve?

The Y+ Global network of young people living with HIV offers an inspiring example of youth-led advocacy

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and programme design in the digital health space. Their initiatives demonstrate how young people can effectively leverage digital platforms to amplify their voices, share experiences, and drive positive change in SRHR policies and services (Y+ Global 2022).

As we move forward, rigorous research and evaluation will be crucial to understanding the long-term impact of digital health interventions on adolescent SRHR outcomes. We need robust evidence to guide future investments and scale-up efforts. This research should not only focus on health outcomes but also explore the broader social and economic impacts of improved SRHR among youth.

Also, it is important to note that human rights bodies such as the African Commission and African Committee of Experts on the Rights of the Child have important roles to play with regard to digital health. Currently, the African Commission is conducting a study on AI and human rights in Africa, which could provide valuable insights for digital health interventions (ACHPR Resolution 2021).

Conclusion

In conclusion, digital health interventions hold immense promise for transforming adolescent sexual and reproductive health in sub-Saharan Africa. By providing accessible, confidential, and youth-friendly information and services, these tools have the potential to empower a new generation to take control of their sexual and reproductive health. However, realising this potential will require thoughtful implementation, ongoing innovation, and a commitment to addressing the digital divide and other underlying inequalities.

Therefore, as we advocate for these digital interventions, we must approach this digital revolution with both enthusiasm and critical reflection. We must celebrate the successes while remaining vigilant about potential risks and limitations. Most importantly, we must ensure that our efforts are always grounded in the real needs and experiences of the young people we aim to serve.

The journey towards comprehensive adolescent SRHR in sub-Saharan Africa is long and complex, but digital health interventions offer a powerful tool to accelerate

our progress. By harnessing the power of technology responsibly and equitably, we can work towards a future where every young person in the region has the knowledge, resources, and agency to make informed decisions about their sexual and reproductive health. This is not just a matter of public health: it is a fundamental human right and a cornerstone of sustainable development for the entire continent.

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