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Overview of Digital Health in Sub-Saharan Africa: Challenges and Recommendations

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Abstract
Sub-saharan Africa accounts for the highest burden of disease globally, coupled with the concern of an insufficient health workforce. Digital health technologies improve the efficiency of the healthcare system. Yet, it faces several challenges. Activities related to healthcare decision-making, medicines delivery and disaster management are improved. These technologies face the challenge of poor internet coverage, lack of durable electricity, and poor health system leadership and financing process. There is a need to upscale the internet and telecommunications infrastructure, and digital health policy development and financing should be encouraged at all levels. Strategic partnerships and workforce training are needed to ensure the adoption and success of digital health in sub-Saharan Africa.

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I. Overview of Digital Health in Sub Saharan Africa

The application of information and communication technology (ICT) to patient health issues and concerns is known as digital health[1]. These ICTs include mobile phones and applications, telemedicine, wearable devices, microprocessors and health information technology[1]. Sub-Saharan Africa represents fifty-five African countries[2], the region accounts for the highest burden of disease in the world and the greatest scarcity of healthcare workers [1,3,4]. Despite these challenges, digital health technologies improve healthcare in the region by increasing access to care, improving the efficiency of the healthcare system, and empowering individuals to take control of their own health [1,3,4,5]. Digital health services are thriving in Sub-Saharan Africa as the traditional health-care systems are generally underdeveloped, understaffed, or not accessible at all[4].

Out of the 54 African countries, 41 have an already existing national digital health strategies and implementation plan, and application of digital health technologies takes different forms and dimensions[3]. These include but are not limited to use of mobile devices in South Africa to get maternal healthcare, in Ghana for detection of substandard drugs, and in Kenya to access digital health-financing platforms. Better decision-making in supply chain management and fewer stock-outs have been achieved in Uganda as a result of enhanced visibility of logistics data from the primary healthcare level and above. Drones are increasingly being utilized in Malawi for delivery of blood and medical supplies [3]. The World Food Program (WFP) and Famoco have implemented the Digitized Care Management System in South Sudan, Uganda, Tajikistan, Madagascar, and the DRC to address health care assistance and monitoring in the context of WFP nutrition programs [4]. Lifebank, a mobile application, connects hospitals, doctors, blood banks, dispatch riders, and facilitates easy delivery of medical samples, oxygen and rare medicines in Nigeria [4]. Digital technology also played a critical role in mitigating the effects of COVID-19 pandemic on the fragile health system in Sub-Saharan Africa through several ways including contact tracing, lockdown enforcement, public enlightenment, and virtual learning (6).

Furthermore, there is a potential to achieve increased internet broadband penetration and smartphone usage in the region, with a projected coverage of about 99% in 2060 and 66% in 2025 respectively of the African population [3, 5]. This signifies the increasing adoption of digital technology in the region, including digital health [4, 5]. Therefore, digital health use in Sub-Saharan Africa has the potential for actualizing the Iron Triangle of Health including reduced healthcare cost, increased access and improved quality of health care [7].

Challenges of Digital Health Use and Implementation

Sub-Saharan Africa (SSA) is faced with the challenge of poor internet penetration compared to developed countries [8, 9]. Significant access to quality internet services is pertinent to the success of digital health. Technologies such as Telemedicine, and the use of electronic records would be inefficient without sufficient internet coverage to meet the population. This situation has limited investment in digital health. Poor internet coverage is further worsened by poor electricity supply. Research evidence shows that poor supply of electricity is a major barrier to the use of digital health technology in SSA. Constant power outage is a dominant condition in many regions in Nigeria, South Sudan, Chad, Malawi, Niger and Sierra Leone among others [9, 10].

The healthcare system of SSA is burdened with poor financing and leadership. There are high costs associated with the implementation of digital technology. These high costs which include the cost of hardware, software, training facilities and maintenance costs [9]. SSAs major source of funding is attributed to donor funding revealing that these countries may be unable to afford the high costs associated with digital health [11]. Digital health success in SSA will depend on the knowledge of the health workforce about digital technologies. SSA is faced with the challenge of inadequately trained workforce to exploit the opportunities of digital health [8].

II. Recommendations

Improving the digital health landscape in Sub-Saharan Africa is crucial for addressing the myriad of health challenges in the region. Digital technologies have the potential to revolutionize healthcare delivery and improve access to healthcare services, particularly in remote and underserved areas. However, the lack of adequate internet and telecommunications infrastructure has hindered the adoption of digital health solutions in the region. To bridge the gap in digital health adoption, there is a need to scale internet infrastructures and improve the telecommunications infrastructure. This will not only improve the quality of service delivery but also increase the adoption of digital health solutions. Additionally, developing locally relevant digital health interventions is crucial for digital adoption. By tailoring digital health solutions to the specific needs of communities and considering social and cultural norms, community participation and the effectiveness of interventions can be improved.

Policy development and financing are also critical for driving the penetration of digital health solutions. Policy support can include incentives and subsidies for digital start-ups, e-regulation to ensure safety and privacy of health data and ensure the quality of digital health services. Partnerships and collaborations between governments, the private sector, and non-governmental organizations (NGOs) can help to strengthen digital health initiatives in Sub-Saharan Africa. Furthermore, the adoption of technology should be commensurate with workforce skills and capacity. This means training healthcare professionals on the effective use of digital technologies, including electronic health records and trackers, telemedicine platforms, and other digital health tools. National digital health plans should translate into actual implementation and sustainability. Such plans should foster regional and international collaboration for knowledge and expertise. Investment in implementation research and financing of local digital health solutions is important for expanding the scope of efficient interventions.

III. Conclusion

Improving digital health in Sub-Saharan Africa is crucial to addressing the health challenges in the region. By scaling internet infrastructures, developing locally relevant digital health interventions, implementing policies, and financing, and fostering partnerships, we can improve access to healthcare services and promote equity in health. Investment in implementation research and financing of local digital health solutions will help to expand the scope of efficient interventions and support the sustainability of digital health solutions in the region.

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