Digital Health Interventions for Sexual and Reproductive Health Rights (SRHR) in Bangladesh: A Situation Analysis

Introduction

Digital health, which emerged from the term "eHealth," refers to the utilisation of information and communication technology (ICT) to address healthcare requirements. This field encompasses a wide range of components, including mobile health (mHealth), 'big data', genomics, and artificial intelligence[1-3]. In 2018, the World Health Assembly acknowledged the significance of digital technologies in attaining universal health coverage and meeting Sustainable Development Goals [1, 3]. This global recognition highlights the importance of integrating digital health into healthcare systems.

Digital health has the potential to significantly improve healthcare in low- and middle-income countries (LMICs). These technologies can enhance healthcare accessibility, affordability, efficiency, equity, and quality, which are often limited in resource-constrained settings[4]. Nonetheless, many LMICs encounter difficulties in gathering and analysing health data compared to their high-income counterparts [5]. As a response, digital technologies are progressively being integrated into healthcare systems to serve marginalised populations, including women, children, and vulnerable groups [6]. The digital revolution and explosion in ICT have helped in improving the routine workflow in the healthcare sector, including Sexual and Reproductive Health and Rights (SRHR) which are integrated into the Sustainable Development Goals under Goal 3 and Goal 5 [7-9]. The use of digital technology can help achieve universal access to SRHR services, including family planning and education [10]. In the current context, where healthcare is evolving from an individual approach to a population-based approach, emerging technologies have the potential to address issues related to geographic accessibility, facilitate the provision of suitable interventions, lower the expenses associated with these interventions, and also contribute to increasing public awareness regarding the management of sexual and reproductive health and the promotion of healthy living [11].

A wide range of digital health initiatives have been piloted in response to specific SRHR components in LMICS[12]. Various policies and strategies in Bangladesh address SRHR, and digital health initiatives can complement and accelerate their implementation. Bangladesh has seen significant growth in mobile phone usage, creating opportunities for digital SRHR initiatives [13]. Combined with national-level health information systems and information exchanges, these initiatives aim to provide SRH information and services through mobile phones, apps, and websites. A comprehensive inventory of these initiatives and their impact is crucial for advancing SRHR in Bangladesh.

Considering the current interest in providing SRHR

services using innovative approaches, a Global Affairs Canada-funded project AdSEARCH implemented by icddr,b undertook an activity to conduct a situation analysis of existing digital health initiatives that provide SRHR services in Bangladesh. This review provides a comprehensive inventory of digital health interventions in SRHR provided by different organisations and, also includes relevant desk review findings to provide an overall scenario for the use of digital tools in SRHR in Bangladesh.

Objective

The primary objective of this review was to assess the current use of digital technologies in Bangladesh to enhance the quality, accessibility, equity, and affordability of sexual and reproductive health (SRHR) information and services. The goal was to gather evidence about the state of SRHR and identify existing efforts and future opportunities.

The review had three main objectives: i) identifying ongoing digital health initiatives related to SRHR in Bangladesh, ii) creating a comprehensive inventory of these initiatives; and iii) gaining insights into their experiences and challenges.

Methods

The review was a combination of desk review and primary data collection to examine programs and interventions using digital tools for sexual and reproductive health and rights (SRHR) services in Bangladesh.

Mapping of the organisation

The mapping exercise identified thirty organisations and programs providing SRHR services through digital tools. Interviews with these organisations' key persons revealed that twenty-one had piloted or implemented digital health initiatives in SRHR. Of these twenty-one organisations, there were two government entities, one United Nations Agency, five international non-governmental organisations (NGOs), six national NGOs, five private entities, one professional body, and one research organization.

Findings from the literature review

This included a total of 40 records in the final review, comprising 38 peer-reviewed journal articles and two reports. These studies were conducted in numerous settings, with 13 in rural areas, 13 in urban areas, and 14 in both urban and rural settings. The majority of the research (27 studies) took place in community settings, while 10 were conducted in healthcare facilities, and three studies encompassed both community and healthcare facility settings.

Desk review

Out of 635 articles initially retrieved for desk review, 40 were included in the final review. These articles covered various SRHR domains, including maternal health, family planning, adolescent SRHR, and cancer registries. Most studies were observational, feasibility, or formative research designs.

The characteristics of the reviewed literature

These were diverse, with 22 studies focusing on maternal-neonatal health, five on sexual and reproductive health for adolescents and women, five related to cancer registries, and seven concentrated on family planning, menstrual regulation, and post-abortion services. Additionally, some articles explored the challenges associated with using digital tools in the field of sexual and reproductive health and rights.

Summary of findings of the retrieved literature

Target groups	**Individual-level:** Adolescents, women, pregnant women, newly delivered mothers, gatekeepers **Provider-level:** Community health workers, healthcare providers, practitioners
Communication medium	**Feature phone:** Helpline, SMS, IVR **Smartphones and internet:** E-toolkit, social media, mobile application, chatbot **Computer:** E-toolkit, web application, social media, chatbot
Areas of content under different interventions	**Maternal and child health:** Maternal health, child health, newborn health. Factors associated with mobile phone usage to access maternal and child healthcare, improving community health workers' performance, and mobile-based nutrition counselling **Sexual and reproductive health for adolescents:** SRH education among adolescents, opportunities of Chatbots for SRH education among adolescents **Family planning:** Family planning, Menstrual regulation, abortion, post-abortion contraception **Cancer:** Cervical cancer, breast cancer

Modality of the digital tools adopted by the included literature

Studies reported on multiple interventions providing SRHR services. Most of the studies used text SMS (12) followed by IVR (7), mobile apps and platform (6), motivational video and e-learning courses (5) and call center (4) (Figure 1).

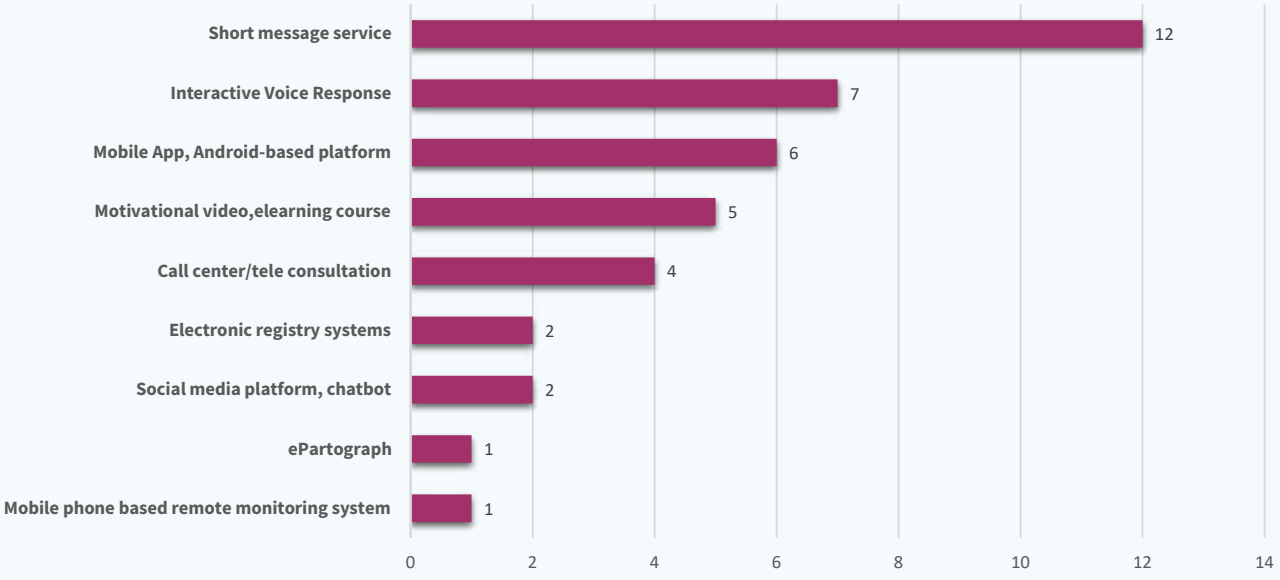

Figure 1: Categories of included literature based on modality of digital tool

Use of digital tools in maternal health service:

The literature review revealed that digital tools were used for maternal health services, including improving antenatal care, postnatal care, and facility-based delivery. The use of digital tools in maternal health services was a focus in 22 out of the 40 reviewed literature pieces. These studies primarily employed cross-sectional, observational, and exploratory study designs, along with secondary analysis and formative research approaches. The majority of these studies were conducted in community settings.

Use of digital tools for adolescent SRHR services:

For adolescent SRHR services, mobile-based SMS was the primary mode of intervention, enhancing access to information and services. The findings from these studies highlighted that mHealth (mobile health) interventions facilitated greater access to information and services related to SRHR for women and adolescents. These interventions also emphasized the importance of increasing access to and utilization of mHealth services for sexual health among adolescent girls in Bangladesh[14-16].

Use of digital tools in family planning and post-abortion services:

Family planning and post-abortion services saw interventions involving text messages, interactive voice response (IVR), e-learning courses, and e-toolkits. These interventions improved knowledge and practice, although one study reported less frequent use of contraception among mobile health users. The studies examined the impact of digital tools on family planning and post-abortion services, showcasing both positive outcomes, such as improved knowledge and contraceptive use, and some challenges, such as potential links to Intimate Partner Violence in certain contexts [17]

Use of digital tools for breast and cervical cancers screening and control:

Five studies focused on breast and cervical cancer screening and control, utilizing mobile apps, motivational videos, mobile-based symptom monitoring systems, and cancer registries. These initiatives aimed to improve breast health promotion, clinical breast examination, knowledge, and awareness among women[18-22]

Discussion

This review summarizes findings from a situation analysis on digital health initiatives for Sexual and Reproductive Health and Rights (SRHR) in Bangladesh. It highlights the need for such initiatives to improve SRH services, especially in low-resource areas. Most initiatives are led by the Ministry of Health and NGOs, but lack collaboration and often remain in the pilot phase with limited impact evaluations. These initiatives mainly target health workers and managers, with few focusing on clients and data services. Compliance with data protection regulations is low, and documentation and cost analyses are insufficient [23]. Additionally, the study calls for alignment of digital health advancements with SRHR policies and emphasizes the importance of adhering to WHO digital development guidelines.

This review emphasizes the importance of adhering to WHO digital development guidelines, including understanding existing ecosystems, designing with users, aiming for scalability and sustainability, prioritizing data-driven approaches, and ensuring privacy and security according to GDPR. It highlights the need for a trained workforce skilled in using digital health solutions and proper governance and funding. Collaboration across sectors, involving governments, international organisations, health service institutions, academia, and implementing agencies, is crucial for overcoming existing barriers. The findings offer valuable insights for key stakeholders, such as public health experts, program administrators, policymakers, and funding organisations, are encouraged to base their decisions on evidence when evaluating the potential for expanding and replicating sexual and reproductive health and rights (SRHR) interventions within the nation.

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