Effective Use of Information and Communication Technology (ICT) for the Prevention of and Response to Sexual and Gender-based Violence (SGBV) Against Women and Children in Low- and Middle-Income Countries

Landscape Review, Framework, and Call to Action

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<td>AI</td>
<td>Artificial Intelligence</td>
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<tr>
<td>App</td>
<td>Application (mobile phone or tablet)</td>
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<td>CBO</td>
<td>Community-based organization</td>
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<td>CSA</td>
<td>Child Sexual Abuse</td>
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<td>DRC</td>
<td>Democratic Republic of Congo</td>
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<td>EGM</td>
<td>Evidence and Gaps Map</td>
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<td>FGM</td>
<td>Female Genital Mutilation</td>
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<td>GBV</td>
<td>Gender-based Violence</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>IPV</td>
<td>Intimate Partner Violence</td>
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<td>LAC</td>
<td>Latin America and the Caribbean</td>
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<td>LMIC</td>
<td>Low- and Middle-Income Countries</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>OCHA</td>
<td>Office for the Coordination of Humanitarian Affairs</td>
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<td>PTSD</td>
<td>Post-Traumatic Stress Disorder</td>
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<td>RCT</td>
<td>Randomized Control Trial</td>
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<td>SGBV</td>
<td>Sexual and Gender-Based Violence</td>
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<td>SMS</td>
<td>Short Message Service</td>
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<td>SVRI</td>
<td>Sexual Violence Research Initiative</td>
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<td>UNHCR</td>
<td>United Nations High Commissioner for Refugees</td>
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<tr>
<td>VAC</td>
<td>Violence Against Children</td>
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<td>VAW</td>
<td>Violence Against Women</td>
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Executive Summary

Information and communication technology (ICT)-facilitated interventions have been used extensively in many areas of health globally, including in sexual and gender-based violence (SGBV) response and prevention. Much of the evidence that exists for SGBV ICT-facilitated interventions comes from high-income countries and settings. Little evidence exists to document its use in low- and middle-income countries (LMIC). The evidence base for ICT-facilitated intervention design, end-user feasibility, and piloting is broader when compared to evidence for ICT-facilitated intervention implementation, impact, and sustainability. The literature shows that ICT-facilitated interventions are generally acceptable to their intended end-users and that the substantive SGBV prevention and response content used within ICT-facilitated interventions is typically based on existing frameworks and developed through rigorous evaluation. In contrast, the literature also shows that often insufficient resources such as funding and personnel are available for interventions to be maintained beyond the pilot or design phase. The field is also characterized by a lack of impact evaluation for ICT-facilitated interventions for SGBV response and prevention.

To address this gap and document the state of the field, HealthEnabled has applied its deep knowledge and experience in the digital health and the ICT for child protection fields to engage in this review of the state of the evidence through an Evidence and Gaps Map or EGM in conjunction with the Campbell Collaboration complemented by a landscape review. This landscape review aims to better understand the range of ICT-facilitated interventions for SGBV prevention and/or response as well as success factors in LMIC to provide a framework and insights for future design, implementation, and evaluation.

The foundational frameworks of RESPECT (World Health Organization, 2019), INSPIRE (World Health Organization, 2016) and the Principles for Digital Development provided the overall lens through which to identify and review interventions. Most interventions reviewed were mobile or tablet-based personal safety technologies with elements of prevention and/or response, including SOS or panic button apps, decision support apps, apps that map areas with high incidence of SGBV, and apps that seek to connect users to information and services. In addition, some of the interventions targeted medical providers, law enforcement, social service advocates or other professionals who may regularly have direct contact with survivors of SGBV. Most of these interventions were data collection tools, particularly for forensic and legal reporting of sexual violence.

Key informants and the literature shed light on key success factors—many of which align directly with the Principles for Digital Development. These include starting with an SGBV theoretical framework, behavior change theory and prioritized outcomes and then systematically applying the Digital Principles to the design, implementation, and evaluation phases. These are complemented by country experiences from South Africa, Brazil, and Nepal. Key prioritized outcomes identified through this process include increased agency to prevent and respond to SGBV, healthy relationships across sexes, more effective communication to de-escalate violence, and improved access to medical and legal services for survivors. There are specific considerations for violence against children, including age-appropriate content and communication, consent, and permissions, understanding children’s access to and use of technology as well as improved educator awareness and engagement.

Recommendations and a Call to Action provide guidance to key stakeholders in the ICT and SGBV ecosystem, including to governments to invest in the enabling environment so that there are supportive policies, strategies, infrastructure, and capacity to truly harness the potential of ICT-facilitated interventions to improve access to information and services related to SGBV prevention and/or response.

Further research is needed to better understand overall impact, but ICT-facilitated interventions are emerging as promising tools to effectively improve access to information and services related to SGBV prevention and/or response in LMIC.
Sexual and gender-based violence (SGBV) is a global concern with often fatal, long-term, health, emotional, social, and economic consequences on survivors, families, communities, and societies. The Covid-19 pandemic’s lockdowns and social distancing measures have increased numbers of SGBV cases (Mlambo-Ngcuka, 2020) and reduced SGBV survivor’s access to care. Availability and use of ICT have increased dramatically in the past 10 years in low- and middle-income countries (LMIC). The role of ICT such as mobile phones, tablets, and computers in health interventions has also grown exponentially in the past two decades. The use of ICT to facilitate all aspects of life, including education, health, and social communication has increased during the COVID-19 pandemic, whereby prevention measures have limited face-to-face interactions. The use of ICT for SGBV prevention and response has also increased. While the evidence base related to other ICT for health in LMIC, such as HIV/AIDS and maternal, newborn and child health is better established, there is limited evidence on the effects of ICT in the prevention of and response to SGBV in connection with women and children.

This landscape review in tandem with a systematic Evidence and Gaps Map (EGM) registered with the Campbell Collaboration (Philbrick et al., 2021) establishes a preliminary base of evidence and experiences in the effective use of ICT to prevent and respond to SGBV against women and children. This document presents the state of the evidence, range of interventions, success factors and considerations, and a Conceptual Framework with Recommendations and a Call to Action for SGBV and ICT stakeholders, policymakers, implementers, and funders. It aims to set a baseline for the state of the evidence and provide early learnings and a framework for informed approaches to effective design, implementation, and evaluation as well as sustainable investments in the enabling environment.

The landscape review is a synthesis of a systematic review of academic and scientific literature in the form of an Evidence and Gaps Map; key informant interviews (KII)s with SGBV and/or ICT practitioners, researchers, and policy makers; and a virtual participatory design workshop held on July 8, 2021. Key informants provided insights to both ICT-facilitated interventions in general as well as specific projects, namely Apprise, MediCapt, BREAKAWAY, and ZonaSegura. The design workshop engaged 24 participants, including the study team, the steering committee, several of the key informants, and other invited SGBV and ICT experts working in LMIC with representation from Brazil, Canada, Mozambique, Nepal, Pakistan, South Africa, Switzerland, United Arab Emirates, and United States. A graphic facilitator also participated in the workshop and produced several visuals included in this report.

Sexual and Gender-Based Violence
SGBV, sometimes referred to as gender-based violence (GBV), is “any harmful act of sexual, physical, psychological, mental, and emotional abuse that is perpetrated against a person’s will and that is based on socially ascribed (i.e., gender) differences between males and females” (UNOCHA, 2019). Prevalence of violence against all women, whether in the form of intimate partner violence (IPV) or perpetrated by non-partners, tends to be higher in LMIC (World Health Organization, 2013). The 2019 Covid-19 pandemic has increased acts of SGBV with some country reports of IPV increasing along with the government-mandated lockdowns and the stress from the loss of livelihoods and confinement (Mlambo-Ngcuka, 2020). COVID-19 will disrupt efforts to end child marriage, potentially adding 10 million child marriages in the next decade that could have been averted to the 650 million women alive today who were married as children (UNICEF, 2021). For every 3 months of COVID-19 lockdowns, an additional 15 million cases of SGBV are expected (UNFPA, 2020).

Despite the higher prevalence, there is relatively less investment in SGBV research in LMIC compared to higher income countries. (Coll et al., 2020). Some studies and a systematic review have outlined effective interventions and approaches to reducing IPV, adding to the SGBV evidence base (Michau et al., 2015; Elsberg et al., 2015). However, the field of SGBV prevention and/or response is characterized by “gaps in research and evidence” which include “lack of data of violence from certain regions; an incomplete understanding of the full scope of health and other consequences; a limited knowledge of what works to prevent and respond to violence against women and girls; and a general
**SEXUAL AND GENDER-BASED VIOLENCE FORMS, CONTEXTS, AND OUTCOMES**

At their core acts of SGBV are associated with the socially assigned gender differences between males and females, often exploiting individual and social power imbalances. SGBV is often a reaction to perceived threats to socially constructed gender roles or norms.

SGBV encompasses many forms, including:
- Intimate partner violence (IPV)
- Conflict-related violence
- Forced and early marriage
- Sex trafficking
- Female genital mutilation (FGM)
- Femicide
- Homophobia and transphobia
- Online and in person sexual harassment
- Sexual exploitation and abuse, including CSA

SGBV has devastating outcomes, including:
- Homicide
- Suicide
- Lifelong disability
- Mental illness
- Substance abuse
- Health—especially sexual and reproductive health consequences
- Poverty
- Social exclusion

SGBV has been used to prevent people, particularly young women, from making choices about their bodies, health, education, work, and lives. SGBV causes some countries to lose up to 4% of their GDP because violence pushes women out of the workforce and girls out of school (World Bank, 2019). 38% of murders of women in the world are committed by their intimate partners (World Health Organization, 2021).

Information and Communication Technology (ICT)

ICT, specifically the use of mobile phones, tablets, and web-based communications (on laptops) to address multiple issues in LMIC, has increased exponentially in the past decade (World Bank 2016). This trend towards ICT uptake is especially true of young people with an average of 83% of those aged 18-29 owning a mobile phone in 2017 (Ippoliti & L’Engle, 2017). Evidence, supported by methodologically rigorous research, of the impact of using ICT in areas such as health, has indicated that if used properly, ICT can increase the impact of interventions and address gaps and challenges inherent with the delivery of development and humanitarian interventions.

Collaborators working in the field of SGBV, such as the Sexual Violence Research Initiative (SVRI) and the World Bank, have recognized and acknowledged the increased use of ICT to both prevent and respond to SGBV globally (SVRI, 2017; Hayes, 2014; Freeman et al., 2012). Published studies on the use of ICT directly for SGBV, notably in LMIC, are scarce. Several recent but narrow systematic reviews have been published that:

1. provide an initial analysis and functional categorization of mobile phone applications addressing violence against women (Eisenhut, et al., 2020);
2. examine web- and mobile-based delivery methods of IPV “victimization” prevention (Anderson, et al, 2020);
3. examine the effect of eHealth interventions compared with standard care on reducing IPV, depression, and post-traumatic stress disorder (PTSD) among women exposed to IPV (Linde et al., 2020); and


Beyond these, a dearth of available peer-reviewed published research exists, particularly in LMIC. Prior to the EGM conducted as an input to this review, there were no known efforts to identify and systematically review the research and evidence of outcomes and impact attributable to using ICT specifically for SGBV prevention and/or response focusing on LMIC. While evidence has been emerging examining the gender implications connected with the use of ICT including various access levels and benefits to women and girls (as well as children in general), increasing evidence has also raised concerns about the role of ICT in exacerbating SGBV, for example using online platforms (Crabtree et al., 2018).

It is important to explain that in the context of SGBV response and prevention, ICT is not necessarily the intervention per se, but the medium through which an intervention may be delivered. For example, the content of an IPV self-screening tool may be identical whether it is in paper-form or on a mobile phone. ICT represents a delivery channel through which an intervention reaches its intended audience.

**Foundational Frameworks**

Several broad SBGV- and ICT-related conceptual frameworks informed the development of this review namely: RESPECT, INSPIRE, and the Principles for Digital Development. Although there are many other frameworks, these were prioritized as they provide an invaluable lens through which to explore various aspects of ICT for SGBV prevention and/or response as they relate to women and children.

The two most relevant frameworks for this landscape review is the RESPECT framework and the Principles for Digital Development. The INSPIRE Seven Strategies for Ending Violence Against Children contain similar approaches contained in the RESPECT framework, but with a targeted focus on children. For purposes of the landscape review and EGM, we focus on child sexual abuse (CSA), a form of VAC. It is important to note that both RESPECT and INSPIRE incorporate evidence-based intermediary outcomes that contribute to broader reduction of SGBV and VAC/CSA, including empowerment and increased economic agency for women and girls. This is because both SGBV and VAC interventions are extremely complex to operationalize and measure. SGBV interventions in general tend to focus on measuring intermediary outcomes, such as the

### SGBV & ICT–related Conceptual Frameworks

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<th>Framework</th>
<th>Key Focus</th>
<th>Organization</th>
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<td>• Individual</td>
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<td></td>
<td>• Interpersonal</td>
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<td></td>
<td>• Community</td>
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<td>• Society</td>
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<tr>
<td>INSPIRE Seven Strategies for Ending Violence Against Children</td>
<td>Violence Against Children</td>
<td>World Health Organization, (2016)</td>
</tr>
<tr>
<td>Principles for Digital Development</td>
<td>Set of 9 principles for the design, implementation, and monitoring of ICT interventions for development and humanitarian efforts.</td>
<td>Digital Impact Alliance</td>
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RESPECT FRAMEWORK FOR ADDRESSING SEXUAL AND GENDER-BASED VIOLENCE

R  RELATIONSHIP SKILLS STRENGTHENED. This refers to strategies to improve skills in interpersonal communication, conflict management and shared decision-making.

E  EMPOWERMENT OF WOMEN. This refers to economic and social empowerment strategies including those that build skills in self-efficacy, assertiveness, negotiation, and self-confidence.

S  SERVICES ENSURED. This refers to a range of services including health, police, legal, and social services for survivors of violence.

P  POVERTY REDUCED. This refers to strategies targeted to women or the household, whose primary aim is to alleviate poverty.

E  ENVIRONMENTS MADE SAFE. This refers to efforts to create safe schools, public spaces and work environments, among others.

C  CHILD AND ADOLESCENT ABUSE PREVENTED. This includes strategies that establish nurturing family relationships.

T  TRANSFORMED ATTITUDES, BELIEFS AND NORMS. This refers to strategies that challenge harmful gender attitudes, beliefs, norms and stereotypes.

The framework also calls for strengthening enabling environments, which include:

• building political commitment from leaders and policymakers;

• investing in and supporting the work of women’s organizations;

• strengthening policies, laws and institutions to address violence against women and promote gender equality; and

• allocating resources to programmes, research and capacity-building of health, education, law enforcement, and social services.
The Principles for Digital Development, endorsed by key international organizations and NGO implementers, are a set of nine guidelines that are particularly useful when thinking about ICT design, implementation, and evaluation and the enabling environments necessary for technology intervention success.

They emphasize collaborative approaches to design, implement and evaluate with end-users and stakeholders. They promote a strong understanding of local contexts, sustainable and feasible projects (including the reuse and improvement of existing ICT interventions), and end-user privacy and security.

As has been the case in other development sectors, including health, there has been a reluctance to embrace ICT in the SGBV field over concerns related to unintended consequences—especially related to survivor safety and privacy. A proclivity exists among SGBV community members for face-to-face prevention and/or response interventions, especially when dealing with trauma and sensitivity. However, the advent of the COVID-19 pandemic has incentivized many SGBV experts to rethink the role of ICT for SGBV prevention and response. Additionally, global mobile phone use continues to grow exponentially, especially among youth (Taylor & Silver 2019). Virtual interactions have become commonplace even in LMIC—this is especially true as it relates to social interactions, especially dating and relationships. Applying the Digital Principles is a good way to ensure greater effectiveness and success of ICT-facilitated interventions.

One key informant expressed a concern that studies examining ICT’s role in SGBV prevention and response should include more demographic information to gauge adaptability to different contexts. This is especially true for end-user age and gender. This aligns with both the Digital Principles—Be Data Driven and Design with the User. For example, many families in LMIC may share a single mobile phone. It should not be assumed that women and girls will always have exclusive access to phones. Local context is integral to the design of a successful and effective ICT intervention to prevent or respond to SGBV. SMS messaging designed with end-users based in a country’s capital or urban context may lose some relevance or practicality when implemented with rural audiences.
There are a broad range of ICT-facilitated interventions for SGBV prevention and/or response. Many of them are captured in the illustration above.

### Prevention Interventions
ICT-facilitated interventions for SGBV prevention include mobile applications, games, radio programs, messaging platforms, and other technologies that end-users (most importantly) are accustomed to using. They include ICT-facilitated products that raise awareness about SGBV and advocate for prevention and response services with local governments and similar authorities. Apps have been developed to facilitate mobile cash transfers (safer than traditional cash) and establish virtual safe spaces. Other apps map physical safe spaces, and conduct safety audits (ex. better street lighting and wider sidewalks). They seek to build healthier relationships between partners. They deliver gender transformative content for youth, women, and men. Lastly, they promote effective communication—including the understanding of consent and de-escalation of risky situations.

### Response Interventions
ICT-facilitated response interventions include technology platforms that support SOS applications to facilitate service referral including, but not limited to, resources for survivor physical and mental health, counselling, social and legal services. They provide awareness of response resources and the safe, anonymous reporting of sexual harassment and/or violence with follow up action. Response interventions are often intended for first responders and service providers, and include ICT-facilitated provisions for screening, forensic reporting, and documentation of violence for law enforcement.

### Prevention and Response Interventions
ICT-based interventions that incorporate both prevention and response approaches include technology-based platforms that support women in planning ways to exit violent relationships and provide networks of peer-support. They highlight self-assessment and an understanding what violence is within a relationship. They also include participatory methods to gather and analyse data as well as design programming related to both SGBV prevention and response.
Review of Interventions
For this landscape review, 16 ICT-based interventions for SGBV prevention and/or response were identified and prioritized for review. Most interventions reviewed were mobile or tablet-based personal safety technologies. Personal safety technologies include both elements of prevention and response. While diverse, all address some aspect of safety: SOS or panic button apps, decision support apps, apps that map areas with high incidence of SGBV, and apps that seek to connect users to SGBV information including response and prevention services (linkages to care). These apps are geographically representative of LMIC (Latin America and the Caribbean, Africa, Middle East, and Asia all represented). The majority of these were NGO initiatives. Their intended end-users are SGBV survivors and/or those at risk of SGBV. However, one intervention (GBV Pocket Guide) was a general information app intended for use by humanitarian practitioners. These technologies, usually smart-phone applications, focus on SGBV in general with many focusing on IPV. While most of these interventions lack formal, data-driven, long-term impact evaluations, many were evaluated through end-user feasibility assessments, content assessments and/or pilot studies. In alignment with the RESPECT/INSPIRE frameworks, most of the personal safety technologies included outcomes related to women’s empowerment (decision support, SGBV self-risk), access to services, and safe environments.

Six interventions targeting service providers as end users were identified and reviewed. These targeted medical providers, law enforcement, social service advocates or other professionals who may regularly have direct contact with survivors of SGBV. Most of these interventions were data collection tools, particularly for forensic and legal reporting of sexual violence. MediCapt is an example of both a forensic and legal reporting tool (end-user feasibility piloted in the DRC; fully implemented in Kenya). Apprise is a data collection tool that assists service providers to screen suspected human trafficking survivors and situations of forced labour/slavery (currently being implemented in Southeast Asia).

Many of these data collection tools are open-source and free for SGBV institutions to use. Examples include Primero, a child protection case management platform supported by UNICEF which offers support for managing SGBV cases of children, as well as Ushahidi, a global mapping/reporting tool originally developed in Kenya to report violence associated with the 2007-2008 election.

While the use of app-based games that can be played using mobile phones has been burgeoning amongst adolescents in LMIC, one gaming intervention for SGBV and VAC/CSA in LMIC is being rigorously studied, namely BREAKAWAY. BREAKAWAY is relatively well known by SGBV experts and has been implemented in both Africa and Latin America through several iterations of piloting and implementation with local partners. BREAKAWAY uses a game format related to football (soccer) to assist adolescent girls and boys to recognize harmful gender norms which can lead to SGBV.

The review also identified one chatbot and one ICT call centre. The chatbot, Hi Rainbow is currently being implemented in South Africa and assists end-users with decision support for healthy relationships and IPV self-screening risk. The SAWA Call Centre in Palestine was included in the (Hayes, 2020) case studies. It includes several active hotlines for SGBV and VAC/CSA in Palestine and provides information related to services and decision support for those at risk of SGBV/VAC/CSA as well as support for survivors.

State of the Evidence
The systematic searches for the EGM resulted in 17 studies from LMIC, including four reviews (two with systematic methodologies). Ten of these met the final inclusion criteria for the EGM. The searches identified 31 additional studies focusing on ICT for SGBV, but the studies came from high-income countries. For the purposes of the landscape review, all 17 studies were included for consideration. The full results of the EGM will be peer-reviewed and published separately by the Campbell Collaboration.

Most of the papers described ICT-facilitated interventions for SGBV in general, without reference to specific projects or products. Three reviews were systematic in their approach and analysis (Anderson, 2019; Linde, 2020; El Morr, 2020). The Linde systematic review did not include any published effectiveness studies conducted in LMIC, although it did mention two examples of ICT-facilitated interventions in Nepal and Kenya (Linde, 2020). El Morr included 25 studies, none of which were from LMIC.
women to response services. Some of the studies were context specific, such as displaced women in Lebanon (Crabtree, 2018). Several discussed the role of ICT in SGBV prevention and response in the context of the COVID-19 pandemic, but with little specification on the relationship between ICT interventions and SGBV prevention and response outcomes. No studies from LMIC related to using ICT to prevent or respond to VAC/CSA were identified. The few studies related to VAC/CSA in the Europe and the United States that arose in the searches described using ICT to facilitate forensic analysis and reporting of suspected VAC, as well as the prevention of the consumption of child sexual exploitation materials.

The EGM and subsequent literature searches demonstrated that evidence for ICT-facilitated SGBV interventions in LMIC is limited overall. Most studies discuss the potential role of ICT-facilitated interventions without reference to specific interventions or initiatives. These studies however stress the potential benefits that ICT-based tools may have for SGBV response and prevention. The few studies that do reference specific interventions show that ICT-facilitated interventions are generally acceptable and appropriate for their intended end-users, especially female sex-workers and service providers. Feasibility and piloting for ICT-facilitated interventions is documented, though limited. The EGM and literature searches did not find any studies related to the implementation or long-term sustainability of ICT-based interventions. The diversity of SGBV inputs, outputs and outcomes in general is reflected in ICT-based interventions.

The reviews stated that meta-analysis was mostly incomplete given the lack of uniform controls, inputs and outcomes generated by randomized controlled trials, making comparisons difficult (Linde, 2020; El Morr, 2020, Anderson, 2019). The reviews also noted that little discussion is given to the safety and unintended consequences of using ICT. Hayes 2020, while not a systematic review but a methodological desk review, offered eight case studies of ICT-based interventions for SGBV from ten LMIC (from Central America, Africa, and South Asia). Hayes stated it was difficult to generalize too much based on the ICT-based interventions reviewed because of the large variance in context and outcomes. The authors concluded that ICT-facilitated interventions represent important and promising tools to overcome barriers related to SGBV prevention and response, especially distance and local bureaucracies. The authors, however, also raised concerns regarding equitable access to ICT platforms by vulnerable women and girls, designing for sustainability and longevity of projects, and the general lack of evidence of effectiveness beyond end-user feasibility and piloting. The article by Sinha (Sinha 2019) included a brief survey of mobile phone-based interventions for violence prevention for women. Most of the case studies were from high-income countries. However, a few included examples were from LMIC, including HarrassMap from Egypt.

Many studies discussed the potential role of ICT in mitigating the effects of SGBV (rather than preventing SGBV). One example included using ICT as a tool to assist in decision-making and/or connecting
Key Success Factors

Through the review process, several success factors for effective use of ICT for SGBV prevention and/or response were identified as they related to design, implementation, and evaluation. Many of them correlate directly with the Principles for Digital Development and represent lessons from trial and error.

Intervention Design Phase
Much of the published literature related to ICT for SGBV prevention and/or response is related to the design of ICT-facilitated interventions. This literature includes formative research, end-user feasibility, pilot testing, and the development of the ICT interventions themselves. Design descriptions also identify many of the activities that occur prior to launch. Launch is understood as the moment that an intervention is made available or released to intended end-users. Interventions that approached design as an iterative process with launch as the start of the project’s timeline were generally associated with success and continuation. Those that approached the design process as strictly linear with launch as the endpoint were generally associated with project closure and cessation.

Begin with Theory & Outcomes of Interest
Academics who study how ICT is used and who are SGBV/GBV specialists emphasize that those interventions which are based upon an evidence-based theoretical framework are those which are most likely to demonstrate effectiveness. In fact, having a strong theoretical underpinning to an intervention (whether it is ICT-facilitated or not) is essential to the intervention’s effectiveness. Using ICT will not remedy an intervention that is not based upon sound theory. For example, interventions that are intended to change attitudes and behavior related to SGBV should be based on sound behavior change theory (or theories).

Understand the Existing Ecosystem & Reuse and Improve
In general, successful ICT-facilitated interventions use a “ground-up” approach to a given SGBV-related issue or problem, where the need for ICT is explicitly articulated and appropriate for the context. Given the long-term costs and human resources needed to maintain ICT solutions, successful design processes clearly indicate how ICT can facilitate specific solutions and contemplate how to prevent potential unintended consequences. This includes ICT solutions that are conceptualized as dynamic, adaptive, and continuously iterative from their initiation with a minimum five-year timeline. Successful design further anticipates routine maintenance, updates to operating systems, updating content, and end-user support (including day-to-day troubleshooting), over the course of the entire life of the intervention or tool.

Critically, ICT design that leverages existing platforms rather than creating new platforms from scratch are typically easier to implement and disseminate to target users. For example, developing a support group for IPV survivors on an existing WhatsApp platform rather than creating a new platform to host it would tend to be more sustainable. This also reduces design and maintenance costs. Another important factor is ICT design that considers ICT use among those end-users who are most vulnerable. For example, more vulnerable populations may not have access to sophisticated “smart” mobile phones, although there is an upward trend of smartphone ownership in LMIC (Taylor & Silver, 2018). ICT design that adapts to less sophisticated devices and lower bandwidths generally have a much broader reach.

Design with the User
Systematic formative research is essential to success. Formative research must use collaborative methodologies to engage with local stakeholders, end-users, and importantly local tech experts. Extensive end-user feedback throughout the entire design process—not just at the initial design stage—can ensure that ICT interventions resonate with and stay relevant to their target audiences. Collaborative design approaches are time-consuming and costly but ensure that interventions are appropriate and feasible. Further, engaging target audiences during implementation can enable course correction when an intervention’s purpose or audience evolve and change over time. Successful projects generally harmonize end-user or stakeholder expectations with technology experts. For example, frontline workers in post-conflict settings may require offline features for a given screening app which may not be realistic or possible with given resource constraints.

Build for Sustainability
One successful approach to sustainability is to engage with local or in house technology support.
SGBV institutions that have in-house tech expertise or tech advisory boards are often better at vetting and managing the design process than those that do not. In-house technology expertise can reduce overall project costs and help avoid common implementation mistakes, especially as it relates to the launch and long-term maintenance of interventions. If technology expertise is outsourced, local technology experts should be prioritized over international experts as they will have a better “understanding of the existing ecosystem” with a stronger grasp of the local ICT landscape, devices, accessibility, user characteristics and resources in the country.

Be Collaborative
Strong partnerships are key to design success. SGBV and ICT partnerships must be transparent and anticipate potential knowledge and power imbalances between institutions. Long-term partnerships can support scale and ensure longevity for ICT projects. For example, mobile network operators can facilitate national scale and access to services, while universities may be able to facilitate ICT design with faculty members who can apply theoretical frameworks and behavior change models as well as offer students learning credit as practice for assisting in the upkeep of ICT interventions. Establishing these partnerships and maintaining them should be a priority for any initiative from day one.

Design Pitfalls
We identified several design factors that were commonly associated with intervention cessation. ICT-based interventions that are created solely as response to a donor-driven initiative or funding opportunity without understanding if a suggested technology is appropriate for a given problem tend to have more problematic experiences compared to interventions that arise from a context-based need and user-centered design process. It is acknowledged, however, that many projects must rely on donor-driven initiatives and that it is not always possible to simply create an intervention from the ground-up without some level of donor-related compromise. The Principles for Digital Development have been endorsed by many donors and offers a framework to guide informed conversations related to technology choices. In addition, relying solely on outside collaboration for ICT design can leave SGBV institutions without sufficient understanding of the true costs of designing and implementing an ICT-based intervention. Institutions without ICT experience must often take advice related to technology at face value and encounter difficulties in finding and establishing successful partnerships with ICT providers.

Implementation Phase
Implementation after formative research and launch includes awareness raising and uptake of ICT-based interventions by intended users, on-going end-user support, and continued maintenance of ICT features of the intervention (e.g. operating systems software for mobile-phone applications). There is some overlap with the design phase, as successful projects tend to be more iterative in their approach. There is less published literature related to ICT for SGBV interventions, especially for HIV prevention and response (USDC 2020). Bright Sky, an application for the prevention of rape, and Hi rAInbow, an IPV decision support chatbot are examples of the types of ICT for SGBV interventions from South Africa. Bright Sky was launched in the United Kingdom in 2018 and successfully adapted to South Africa in 2020 and includes special consideration for the COVID-19 pandemic.

COUNTRY EXPERIENCE
SOUTH AFRICA
South Africa is no exception to growing mobile-phone use amongst populations in LMICs. South Africa’s ICT landscape is sophisticated, and the country serves as a regional hub and supply base for neighbouring countries (USDC 2020). Despite this, there is still an evolving technology landscape. South African public policy includes extensive spending for ICT for socio-economic justice and inclusion, including mHealth interventions, especially for HIV prevention and response (USDC 2020). Bright Sky, an application for the prevention of rape, and Hi rAInbow, an IPV decision support chatbot are examples of the types of ICT for SGBV interventions from South Africa. Bright Sky was launched in the United Kingdom in 2018 and successfully adapted to South Africa in 2020 and includes special consideration for the COVID-19 pandemic.
Implementation (sustainability) and the critical step from piloting to implementation (design for scale). Implementation activities should align to the policies, strategies, infrastructure, and services with emphasis on cross-institutional capacity. Formative research during the design process should anticipate the unique characteristics of the “enabling environment”. No formative research is completely definitive and projects that are quickly able to assess and adapt to unforeseen roadblocks as they progress are more successful. Implementors must manage both their own and donors’ expectations in relation to this. Problems will arise. Having a strong contingency plan for adverse events and a strong sense of adaptability can help mitigate these problems faster and avoid larger interruptions to implementation plans.

Scale-up efforts should also include systematic awareness raising. Implementers must plan, with detail, how to reach their intended end-users. Raising awareness is not uniform. It may be straightforward in urban settings using traditional media campaigns such as print or radio, but rural areas may rely more heavily on peer-to-peer dissemination. Strong awareness raising goals and indicators are important—such as the number of downloads for an app-based intervention. Additionally, dissemination requires a separate and complete budget to be successful and maximize reach.

Strong, constant maintenance, that includes day-to-day troubleshooting, is tantamount to ICT-facilitated intervention success. Design and launch are relatively straightforward but maintaining an intervention is much more challenging and expensive. Implementation plans that include mechanisms for routine software updates, user-analytic analysis, bug-fixes, and end-user support as well as assigning responsibilities are more successful. ICT interventions, regardless of their modality require on-going maintenance. Operating systems change over time, bugs arise, and users will require support. Once something goes wrong, users are prone to abandon the intervention if the problem is not immediately and readily addressed.

COUNTRY EXPERIENCE

BRAZIL

Brazil has a high burden of SGBV, especially IPV and transphobia, characterized by a prevailing sense of “machismo”. Incidence of femicide and VAC have also been increasing nationally. Brazil has a strong civil society, including feminist groups and SGBV-related institutions that historically participate directly in public policy development. Mobile internet use is nearly universal in Brazil with essentially all SMS (text messaging) on WhatsApp. National and state public policy related to ICT for SGBV prevention and/or response is inconsistent. Some state governments support data standardization and mapping projects, but there is no single national strategy guiding these efforts. Many interventions in Brazil, such as UNICEF’s Proteja or UN Women’s Clique 180, fall into a common ICT narrative. Implementation focuses on launch, but without sufficient resources for uptake and maintenance, causing many ICT interventions to become inactive within a year or two. Clique 180 was an app focused on the prevention of rape through general SGBV information. Proteja was intended as a general child safety app with modalities for other vulnerable persons, such as the elderly. Its main objective was to help facilitate reporting of cases of suspected abuse to law enforcement. No information for Clique 180 is available beyond 2018. Proteja was substantially promoted by both UNICEF and the Brazilian government when launched in 2013, but the app was phased out in 2016—ostensibly where it was integrated into Disque 100—a general online portal to denounce human rights violations provided by the Brazilian government.

Design for Scale & Build for Sustainability

The Principles for Digital Development are particularly useful in helping projects conceptualize and plan for their implementation and sustainability. They specifically contemplate both long-term

did not properly budget for these factors: awareness raising, scale-up, maintenance and upkeep were nearly universally associated with failure. Lack of systematic planning for ICT maintenance was especially associated with intervention cessation.

Be Collaborative

Project implementation plans need to indicate who is responsible for what function over their entire timeline. For example, for the post-launch period, SGBV institutions may wish take on a more
consulting role while the day-to-day maintenance of an app is managed by a third party, such as in-country contractors or local universities. These roles and relationships rely on the strong partnerships between or among stakeholders, ICT providers, and SGBV experts that are established during the design phase. Government buy-in is also essential. Openness and transparency about implementation experiences across SGBV institutions and projects can lead to stronger collaboration, avoidance of common mistakes and duplication of efforts, and better coordination and streamlining of evidence for ICT on the macro level.

Evaluation Phase
Impact evaluation of past ICT interventions help inform and strengthen future projects and help promote sustainability. Without evaluations and integrating lessons learned into interventions, successes in effectiveness are not realized, and funders and users arguably will lose interest and abandon projects. SGBV experts need to know if ICT interventions are successful beyond their feasibility. This includes a strong set of clear indicators for SGBV and ICT interventions and aligns with the Digital Principle—Be Data Driven. While standardized indicators for SGBV and ICT are more a goal than a reality, many frameworks such as RESPECT and the Principles for Digital Development can assist researchers to create project-specific indicators a priori, particularly to measure effectiveness. They can help projects more successfully design interventions in ways that enable the evaluation of their effects and impact.

Risks of Not Investing in Evaluation
Assessments that only focus on ICT intervention content, feasibility, and process indicators without looking at long-term effectiveness impact can lead to the repetition of common mistakes and/or duplication of efforts across SGBV institutions. The lack of clear harmonized indicators to measure intervention effectiveness can exacerbate this, making it difficult to build a coherent evidence base from which informed policy decisions and investments can be made.

COUNTRY EXPERIENCE
NEPAL
Nepal has a rapidly changing ICT landscape. Country-wide ICT infrastructure, such as internet and mobile phone networks are improving, resulting in increased ICT use among the Nepalese population. National public policy related to increased ICT access tends to favour private interest, rather than benefit average users. Civil society groups have begun to pressure national policymakers in relation to child safety and internet use, especially in the context of child marriage in Nepal. SGBV experts stress that unique cultural factors, such as the social pressure to share cell phone and social media account passwords between intimate partners must be addressed and considered for any ICT-based intervention in Nepal. Nepal represents a country where ICT and mobile phone use are relatively novel. Civil society groups, such as the Child Safety Network, are conducting research to understand how the Nepalese are engaging with ICT via Artificial Intelligence (AI) analysis. This research aims to understand how ICT interventions can be used for SGBV prevention and response while considering unique cultural factors for ICT use in Nepal. Current efforts at addressing the use of ICT in the context of SGBV in Nepal include “ChildSafeNet”, an NGO formed to focus on how the unsafe use of digital technology exposes children to online sexual abuse, exploitation, and sextortion. Activities of ChildSafeNet include research on the role that ICT can play with children. Separately, there are efforts through the “Change” trial study of using methodologically rigorous studies to assess whether and to what extent a multicomponent program (i.e., media and community engagement strategy), including radio and SMS contributes to a reduction in IPV.
As indicated earlier, interventions that begin with the theory and outcomes in mind have greater chance of success. While the ultimate desired impact is to prevent and respond to SGBV, there are many intermediary outcomes that are associated with the improved access to information and services that ICT provides as well as ICT as a “communication” channel. Prioritized outcomes for ICT-facilitated interventions for SGBV prevention and/or response are diverse and generally not harmonized across research studies. They include outcomes related to increased agency—specifically related to individuals at risk of SGBV being able to identify their risk, make informed choices, and take appropriate action. Those who have experienced violence must also have the agency to access the response resources they need. Other outcomes are related to an increased understanding of violence and options for both its prevention and response. In addition, there are several outcomes related to healthy relationships and communication, including more positive interaction between partners, the ability to de-escalate, and the reduction of home-based conflicts. Outcomes are also related to changing harmful gender norms and attitudes and increasing bystander awareness of SGBV. Outcomes include better and more effective response services and the stronger application of SGBV related laws, including increasing the numbers of SGBV case reporting and prosecutions. Lastly, they include the better collection of SGBV related data and the participation of end-users in creating ICT for SGBV platforms.

The illustration above was created during the design workshop to serve as a conceptual framework for the effective use of ICT for the prevention of and response to SGBV.

Special Considerations for Children
In addition, there are special considerations for children—who often experience violence from those
who are meant to protect them, including caregivers, teachers, etc. As such, educators must have the awareness and ability to recognize and respond to SGBV connected to VAC (i.e. CSA) within the school environment as well as at home. Children also need guidance to help identify support services, so they know where they can go for help. As minors, children also require special consideration for consent and permissions and age-appropriate communication approaches. Specific SGBV issues, such as child marriage, conflict resolution and general good parenting practices with parents are key to addressing and preventing SGBV related to VAC and considering the impact of SGBV on children.

Key challenges to using ICT for VAC prevention and/or response are generally related to two issues. First, children’s access to ICT in LMIC is not well-understood nor documented, resulting in hesitation for specific interventions designed for children. Second, prevention and response to VAC is also often collapsed into and inextricably linked with considerations for IPV and domestic abuse. Many IPV-focused ICT-facilitated products, such as MyPlan, include considerations for vulnerable women and their children. Informants described that one potential, exclusive role for ICT-facilitated products in VAC/CSA response is that they may be used to record and subsequently replay children's testimony in criminal cases, which prevent children from having to relive trauma by repeating testimony multiple times.
Throughout the landscape review process recommendations for key stakeholders have been collated. They can help facilitate smoother design processes and support intervention implementation success. The following recommendations are for key stakeholders in the ICT for SGBV prevention and/or response ecosystem—namely governments, NGOs, CBOs, women’s groups, health system administrators, health service providers, law enforcement, social workers, funders, ICT-providers, and end-users. The Call to Action provides targeted advocacy areas that can help to advance the effective use of ICT for SGBV prevention and/or response.

Recommendations for Design, Implementation, and Evaluation

1. Begin with the Theory of Change and prioritized outcomes of interest and identify opportunities where technology can be explored.

2. Use the Principles for Digital Development to design, implement, and evaluate ICT-facilitated interventions for SGBV prevention and/or response.

3. Invest in awareness raising and strategic partnerships to increase uptake of interventions for scale.

4. Develop ICT for SGBV security and safety guidance that can mitigate unintended consequences for end-users and their security.

5. Cultivate strong collaboration between technology providers and SGBV experts beyond the needs of a specific project. This includes seminars, workshops, and conferences on best practices for ICT design and/or partnerships for SGBV prevention and/or response.

6. Promote and finance stronger impact evaluation beyond piloting stages, this includes the inclusion and evaluation of generalized but project-specific ICT for the SGBV prevention and/or response indicators, including indicators relating to intermediate prevention outcomes and indicators of recovery from SGBV.

7. Conduct studies explicitly exploring digital parenting interventions to a reduction of SGBV related VAC (CSA).

8. Develop a set of harmonized standard indicators that can be used to gauge success, particularly related to effectiveness.

9. Generate more comprehensive funding that accounts for all phases of a project timeline.
Call to Action

The Call to Action highlights key activities needed to increase the effective use of ICT for the prevention of and response to SGBV. It includes advocacy for safe spaces for women, both physical and virtual as well as ICT-facilitated interventions that promote privacy, security, and anonymity. The Call to Action emphasizes leveraging existing ICT platforms when possible and partnering with ICT-providers to adopt the Principals of Digital Development for more ethical technology design. It advocates for the increased participation of marginalized communities in the creation of SGBV-related ICT-based interventions and calls on funders to increase resources for ICT-based interventions in LMIC with rigorous evaluation with emphasis on their sustainability. Lastly, it calls for greater collaboration across all stakeholders so that no woman nor child should experience SGBV in LMIC.
Conclusion

The purpose of this landscape review is to provide a robust profile of the use of ICT-facilitated interventions for SGBV prevention and/or response in LMIC. Overall, the evidence related to effectiveness of ICT-based interventions in LMIC is very limited. RESPECT and the Principles for Digital Development provide overarching frameworks to guide successful design, implementation, and evaluation beginning with prioritized outcomes. The recommendations and call to action provide guidance to key stakeholders in the ICT and SGBV communities as well as to governments. A shift in approach is needed to create more sustainable and effective ICT-facilitated interventions. This landscape review is a crucial first step to understand how technology is being used to help reduce the burden of SGBV in LMIC. It also highlights how they can be strengthened to reduce the occurrence of SGBV such that women and girls have access to the information and services they need where and when they need them most.
References


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