

Mobile Phone Programs For Adolescent And Youth Sexual And Reproductive Health In Low- And Middle- Income Countries

Research Brief

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Research Highlights

- A landscape analysis assessed how programs use mobile health (mHealth) interventions to improve adolescent sexual and reproductive health (SRH) in low- and middle-income countries (LMICs).
- The majority (82%) of programs use mHealth as a health promotion tool to facilitate knowledge sharing and behavior change to improve adolescent SRH.
- Nearly 20% of programs use mHealth to link adolescents to SRH and family planning services and to HIV care and treatment.
- Several mHealth programs started in one country, but evolved to become multi-country programs. Some of those programs did not alter their platforms for the expansion, while others did.

BACKGROUND

Mobile health (mHealth) is the practice of using mobile phones to improve health behaviors and services. Because mobile phones offer privacy, convenience, and access, they are especially appealing to adolescents.¹ Global reproductive health programs are leveraging mobile phones to support adolescent health in rural and urban communities through diverse communication formats that link adolescents to information and services on a wide range of sexual and reproductive health topics.

Youth and technology

Due to declining mobile phone costs and increasing reliance on mobile phones as essential commodities, more than 87% of youth in the developing world have become mobile phone subscribers.¹ While data on mobile phone penetration among younger populations is limited, recent findings suggest that mobile phone ownership among youth in low-to-middle income countries (LMICs) is steadily increasing.³ Table 1 (right) shows findings from a 2014 survey of 24 emerging nations, which reveal that between 58% and 95% of people aged 18–29 owned mobile phones.

Barriers to information and services

mHealth helps youth overcome many barriers to seeking sexual and reproductive health (SRH) information and services. Youth seeking SRH services—traditionally perceived as services solely appropriate for adults—commonly report stigma and discrimination from health-care workers. Additionally, youth face cost prohibitions and transportation challenges in reaching health facilities.⁴⁻⁷ Embarrassment and perceived lack of privacy and confidentiality in communications with adults around SRH add to youths’ challenges in obtaining high-quality comprehensive information. Yet, adolescents lack information and hold many misconceptions about reproductive health, contraception and condoms, and HIV.⁶⁻⁸ In this challenging landscape of information provision, programs that provide alternative, but complementary, means of reaching youth are needed. mHealth programs deliver relevant and timely information and meaningful engagement to youth outside facility settings without stigma or judgment.

Table 1: “Cell Phone Ownership by Age”

Country	%
Philippines	83
Mexico	75
Indonesia	90
Bolivia	89
Malaysia	98
Argentina	92
Turkey	98
Brazil	87
El Salvador	86
Senegal	86
Tunisia	94
Nigeria	82
Pakistan	58
Chile	96
South Africa	94
Lebanon	90
Ghana	88
Venezuela	88
Russia	98
Egypt	92
Uganda	59
Jordan	95

Source: Pew Research Center 2014

¹ The United Nations (UN) defines adolescents as people between the ages of 10 and 19 years old and youth as people between the ages of 15 and 24 years old.

Mobile phone usage

Global research suggests that providing SRH information via mobile phone is appealing, feasible, and culturally acceptable to youth.⁹⁻¹³ Studies have demonstrated that mHealth can positively influence youth SRH outcomes by improving knowledge, reducing sexual risk behavior, and increasing utilization of health services.^{3,14-17} Finally, data from costing studies suggest that mHealth program expenses are reasonable and affordable and that text messaging has cost-saving benefits.¹⁸⁻²⁰ For example, a study conducted in India found that the cost of mobile phone reminders for antiretroviral therapy (ART) adherence for people living with HIV resulted in a maximum cost of \$1.77 per patient per year. The total program costs for a scale-up of this mHealth intervention to reach the one million patients was estimated to be only 0.36% of the total five-year HIV national program budget.¹⁸

The appealing qualities of mHealth interventions have translated into growing recognition that mobile phones offer a promising platform for reaching large numbers of adolescents across diverse settings with private, essential, high-quality, and comprehensive SRH information and support. This brief summarizes the mHealth for adolescent SRH (ASRH) landscape in resource-poor settings. It offers programmatic examples of mHealth interventions targeting improvements in ASRH in order to inform health and technology program planners and practitioners.

METHODS

To obtain the latest information about mHealth programs focused on ASRH, a literature review was conducted then a call for project resources was issued in July 2014. Information about approximately 25 different projects was submitted. These projects were reviewed to confirm mobile phones were utilized as a key communication medium for the program; adolescents and youth, ages 10-24, in LMICs were a prime target audience; and the programs used mobile-phone features beyond one-on-one phone calls between youth and health professionals.



RESULTS

The 17 projects that met the inclusion criteria are summarized in Table 2. These projects reveal a wide range of geographic representation, content, and delivery methods among programs that use mobile-health technology to improve the SRH of young people in LMICs. The majority of these interventions are based in Africa (67%), followed by Europe and Asia (26%) and Latin America (13%).

Table 2: Descriptions of mHealth interventions for young people

Project Name and Organization	Country	Purpose	Strategies for Reaching Young People	Project Aim
InfoAdo Senegal, One World http://oneworld.org/2013/09/19/info-ado-apprendre-a-vivre-senegal/	Senegal	Mobile phone question and answer service by trained counsellors from local organizations provide rapid, accurate, and non-judgmental answers. Addresses adolescent SRH issues for in and out of school youth ages 11-34.	Mobile phone and web-based question-and-answer service	Health Promotion
Chat Salud Nicaragua, Chat Salud, https://www.facebook.com/Chatsalud	Nicaragua	Mobile phone question and answer service that delivers gender-based violence, contraception, sexual health, and STI information.	Opt-in, menu-based, two-way SMS platform.	Health Promotion
CHITCHAT Belize, CHITCHAT	Belize	Hotline service that provides SRH information for ages 15-45 that is accurate, culturally relevant and aimed at dispelling popular misconceptions/myths about reproductive health and family planning.	Text-based info hotline	Health Promotion
E-voucher, Marie Stopes http://www.mariestopes.org.et/what-we-do/e-voucher	Ethiopia	A subsidized voucher program to increase young people ages 15-29's access to and choice of contraceptive methods. Vouchers can be redeemed at one of the health facilities attached to the program to receive a free counselling session on all contraceptive methods to ensure voluntary and informed choice.	Randomly assigned voucher codes are sent directly to the client's mobile phone.	Links to Services

Weleli Info Ado, One World http://oneworld.org/2013/09/19/info-ado-mali/	Mali	Through eLearning environment, a mobile phone question and answer service, InfoAdo Mali addresses adolescent SRH issues for young people ages 11-34 in and out of school. Trained counsellors from local organizations provide rapid, accurate, and non-judgmental answers.	Mobile phone and web-based question-and-answer service	Health Promotion
Learning about Living Cambodia, One World http://oneworld.org/2013/09/19/learning-about-living-cambodia/	Cambodia	Addresses adolescent SRH issues for young people ages 11-34 in and out of schools. Trained counsellors from local organizations provide rapid, accurate, and non-judgmental answers.	Mobile phone and web-based question-and-answer service and mobile podcasts.	Health Promotion
Bila7araje Morocco, One World http://oneworld.org/2013/09/19/bila7araje-morocco/	Morocco	Addresses adolescent SRH issues for young people ages 11-34 in and out of schools. Trained counsellors from local organizations provide rapid, accurate, and non-judgmental answers.	Mobile phone (SMS and emails), a web-based question-and-answer service, and Facebook chat.	Health Promotion
Ma3looma, One World http://oneworld.org/2013/09/19/ma3looma/	Egypt	Addresses adolescent SRH issues for young people ages 10-29 in and out of schools. Trained counsellors from local organizations provide rapid, accurate, and non-judgmental answers.	Mobile phone (SMS and emails), a web-based question-and-answer service, and Facebook chat.	Health Promotion
m4RH, FHI 360 http://m4rh.fhi360.org/	Tanzania, Kenya, Uganda	SRH and family planning information service. Eighty-two percent of users are ages 29 or younger.	Opt-in, menu-based, two-way SMS program which also include role model stories of FP use.	Health Promotion & Links to Services
m4Youth, Pathfinder http://www.pathfinder.org/publications-tools/m4youth-providing-health-information.html	Ethiopia	Tailored SRH, family planning, and HIV information for university students and peer educators.	A menu-based SMS service, which students enroll by texting a short code to receive messages containing SRH menu options.	Health Promotion

m-ASSIST, Cell Life http://www.cell-life.org/projects/m-assist/	South Africa	Mobile phone solution to improve provision of medical abortion and post abortion family planning use to youth 18-29 in South Africa with 50% of users ages 18-24.	SMS messages were sent to (1) coach women through the abortion process (2) how to manage side effects (3) encourage post abortion family planning use	Links to Services
mCENAS, Pathfinder http://www.pathfinder.org/our-work/projects/sms-client-education-to-improve-family-planning-uptake-among-youth.html	Mozambique	An SMS-based role model story showing common barriers to contraceptive use faced by youth, as well as an informational message system aimed at increasing knowledge about contraceptive methods for youth 15-24.	Role model stories and answers to FAQs via text messages on family planning access and uptake	Health Promotion
mCHAT, Save the Children	Thailand	Use of ICT to disseminate information on HIV prevention, treatment, care and support to young men who have sex with men (MSM) and transgender people.	Social media/mobile apps	Health Promotion
menZDRAV Foundation, http://menzdrav.org/	Russia	Deliver confidential and accurate SRH information and HIV counseling to MSM aged 18–25 years living with HIV.	Facebook app and Skype	Health Promotion & Links to Services
My Question, OneWorld and Education as a Vaccine (EVA) http://oneworld.org/2013/04/16/learning-about-living-nigeria/	Nigeria	SRH information and education delivery service for young adults. Trained counselors provide responses using a database of answers to frequently asked questions or customized replies.	Mobile phone and web-based question-and-answer service	Health Promotion
Project Khuluma, SHM Foundation http://shmfoundation.org/?page_id=319/	South Africa	Provide psychosocial support to HIV positive adolescents ages 13-18.	Provides psychosocial support via text messages to adolescents with HIV	Adherence
Yangpela Hotline, Marie Stopes https://mariestopes.org/where-in-the-world#papua-new-guinea	Papa New Guinea	Confidential, youth-friendly SRH information for young people 24 and under.	Text-based info hotline	Health Promotion

DISCUSSION

Most projects (70%) relied on text messaging/short message service (SMS) to transmit SRH information to their users (Table 2). These programs demonstrate the wide utility of SMS as a way to transmit and facilitate knowledge sharing within varied domains of ASRH. Programs such as mCENAS, M-ASSIST, and Project Khuluma highlight the various ways in which SMS has been leveraged to transmit information, support, and counseling on different SRH services. For example, M-ASSIST and Project Khuluma used SMS to transmit messages on post-abortion care and psychosocial support, respectively, for youth living with HIV. mCENAS also used SMS functionalities to transmit role-model stories about using contraceptive and making decisions. These examples suggest that the functionality of SMS is responsive to innovative ways of health messaging, including direct text/SMS messages, role-model story lines, psychosocial support, and counseling.

The remaining interventions employed a mix of informational hotlines or social-media applications to reach their users. Notably, in Ethiopia, Marie Stopes International (MSI) sent electronic vouchers (e-vouchers) directly to the user's mobile phone, which were redeemable at affiliated health facilities for free counselling sessions on contraceptive methods as well as medical abortion and post-abortion care services. menZDRAV offers anonymous HIV counseling and support via social media and Skype to men who may be reluctant to attend support groups for fear of having their sexual orientation or HIV status publicly identified.

Age segmentation data of users extracted from the interventions suggests that older adolescents (ages 15 and above) tend to be the primary beneficiaries of these mHealth interventions, with lower program uptake among younger adolescents.

Intervention strategies for reaching adolescents and youth

Most (82%) interventions used mHealth as a health promotion tool to facilitate knowledge sharing and behavior change in order to improve ASRH. These programs provided a mobile phone platform for youth to text SRH questions to a health professional, allowed adolescents to retrieve “on-demand” SRH content through a question and answer platform, and offered “push” messaging, in which SRH content was texted to adolescents on a regular schedule. For example, Learning about Living's (OneWorld) question-and-answer service operates on a SMS platform, allowing youth to text their questions to counselors trained in gender, SRH, and human rights. Counselors aim to reply to every question within 24 hours, but often respond within an average of six hours, depending on the number of questions received during that period. As Learning about Living has expanded from Nigeria to Senegal, Morocco, Egypt, and Cambodia, they extended their communication platforms to also include email and Facebook. In Cambodia, Learning about Living complemented these outreach approaches by adding a mobile podcast component. The podcasts were developed by youth and consist of short audio episodes that can be delivered via recorded call to subscribers' phones as well as through an on-demand interactive voice response (IVR) call-in service. Approaches such as these have enabled Learning about Living programs to achieve tremendous reach.

A similar method was also used in Senegal and Nicaragua. During their first three years of operation, Info Ado answered approximately a quarter of a million SMS messages sent in by more than 67,000 individual users in Senegal. In Nicaragua, ChatSalud uses a SMS platform for health promotion aims. Their interactive, “ping-pong” SMS platform allows users to customize which information to read and which to skip, based on a series of menus and coded themes. Users can choose from a wide variety of SRH topics such as HIV/AIDS, sexually transmitted infections, reproductive health, and safer sexual practices.

Almost a fifth (18%) of other projects used mHealth as a way to link users to needed SRH services, including family planning counseling and services, and HIV care and treatment. For example, between August 2012 and February 2013, MSI Ethiopia piloted an innovative e-voucher system in order to increase demand for family planning services and counseling among youth. They issued 2,521 e-vouchers; by the end of this period 51% had been redeemed, of which 92% were redeemed by youth ages 15–29.

Scaling up ASRH mhealth interventions

Several of the 17 identified mHealth programs began as single-country programs, but over time evolved and scaled up to become multi-country programs that include additional functionality. For example, in 2007, Learning by Living began as an Internet-based sexual health platform in Nigeria. Through additional funding, the program was able to respond to

youth desire for mobile phone access, by providing a mobile phone component with additional technology features. In order to reach more youth, Learning by Living expanded to five additional countries—Senegal, Morocco, Mali, Egypt, and Cambodia. Similarly, the Mobile for Reproductive Health (m4RH)—an FHI360 project—began by disseminating family planning information via text messages to people of reproductive age in Kenya and Tanzania. Based on pilot data showing high participation and resonance among young people, the intervention then expanded, disseminating broader sexual and reproductive health information for youth ages 15–24, and has since been adapted to target youth in Rwanda, Tanzania, and Uganda.

Challenges

mHealth is in a state of constant growth and evolution. As mHealth technologies advance, evolve, and expand to improve ASRH, fundamental challenges—with regard to access, security, infrastructure, and functionality—need to be addressed. These challenges are often encountered and should be addressed in the early design and pilot stages of a project. For example, interventions must ensure that health messaging is adapted not only to the primary languages spoken by the audience base, but also to the vernacular with which youth feel most accustomed. Despite the advantages of using SMS—particularly among young people—SMS health messaging has limitations that inhibit robust content provision and prompts for engaging users in a two-way communication. Structural issues, such as a weak cellular network infrastructure or poor telecommunications service, can present connectivity issues, which often compromises the continuity, reach, and quality of the intervention.

Maintaining the security and confidentiality of user information and data is another formidable challenge to mHealth interventions. In LMICs, where mobile phones are often shared among family members, youth may have difficulty shielding information they receive or send about sensitive or taboo health topics. Table 2 provides a description of programs previously or currently engaged in activities that address concerns about access and privacy. Demographic data from these programs indicate that younger adolescents do not engage with mHealth messaging to the extent that older adolescents do, despite the fact that the health information provided is likely to have a more substantial impact for them.

Future Directions

Evidence from this landscape analysis suggests that there is increasing potential for knowledge management and behavior change within mHealth interventions. While findings from this analysis suggest high feasibility and acceptability among youth participants in mobile phone interventions, these results are limited as most are not the result of rigorous research designs and methods and do not necessarily focus on measuring or quantifying knowledge and behavior change.¹³ Future mHealth interventions targeted at improving youth SRH should focus on assessing reductions in sexual risk behavior and uptake and maintenance of contraception and HIV services. Measuring progress on intermediate behavioral outcomes such as changes in SRH norms and increased confidence in adopting and using contraception is recommended to bolster the evidence base. In terms of optimal user engagement, future studies should also seek to address what barriers prevent younger adolescents (under 15 years) from participating more fully in mHealth interventions.

Increased evidence and programmatic guidance is needed on the role an mHealth component should play in the larger health ecosystem, particularly with regard to youth programming. Although mHealth has been identified as an important way to reach adolescents and youth, what proportion of resources should be allocated to a mobile phone component, in combination with other youth programming elements, and whether an mHealth program can achieve success as a standalone intervention still needed to be determined. Evidence is also needed on how to best utilize mobile phones in youth programs to support effective interactions with health-care providers and to increase young people's use of health services. Additionally, data is needed to better understand the cost and cost-effectiveness of mHealth interventions for improving youth SRH outcomes as well as the return on investment, in terms of knowledge, behavior, and social norm change.

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