

# 8

## mHealth

In this module, you will learn more about mHealth tools and approaches. You will receive an overview of the digital health landscape and how mHealth fits into this context. You will develop understanding around the value and advantages of mHealth tools, as well as some of the disadvantages and challenges of implementing mHealth approaches. The module then provides some practical guidance on integrating mHealth into peer support strategies, through providing one on one and group support using various platforms, illustrated through some real case examples.

1. Why should we consider mHealth approaches?
2. How can mHealth be used?
3. What are some of the advantages and disadvantages of using mHealth tools?
4. Planning, designing and implementing your mHealth intervention
5. Case examples of mHealth projects
6. Key lessons learnt



# 1. Why should we consider mHealth approaches?

Young people's current engagement with digital technologies is unprecedented, particularly mobile phone and internet use. The highest prevalence of internet connection is seen in the 15-to-24-year age group, with an estimated 71% of this group online globally, compared to 48% of the total population. In a survey conducted with youth 18 to 25 years in South Africa, 86% reported that they had been online in the last 7 days.

Nonetheless, digital divides reflect economic inequalities, with African youth least likely to have access to the internet. Around 60% are not online, compared to just 4% in Europe. However, smartphone access is somewhat more prevalent than internet access, with over 50% of those in the 15–24 year age group in LMIC having access to a smartphone, with mobile phone ownership among youth in LMIC steadily increasing.

In addition, with the rise of technology and expansion of access, increasingly, young people are using technology in relation to their health. In research with adolescents 10 to 19 years, it was found that for each year of age, adolescents were 24% more likely to use their phone to search for health-related information.

Finally, the advent of the COVID-19 pandemic has highlighted the necessity of developing alternative ways of reaching and engaging with people regarding their health, and spurred the development of innovative remote means of initiating, maintaining and retaining people in care, supporting adherence, and supporting psychosocial care and support. There is, more than ever, the potential for mHealth tools and approaches to transcend geographical and other barriers and contribute to the global goal of universal health for all. We have seen growing usage and success of mHealth in strengthening peer support activities. However, it is not a panacea, and we must ensure that it is implemented with thought and care, and in a way that does not create further divides and imbalance.

**“The risk that connectivity can become a driver of inequity, not an equalizer of opportunity, is both real and immediate.” (UNICEF; 2017, pg 18).**

In the sections below, we will explore how mHealth can be used, some of the advantages and disadvantages of mHealth approaches, look at how to go about implementing an mHealth intervention and integrating mHealth into peer support activities, review some case studies of mHealth interventions with adolescents, as well as consider recommendations and lessons learnt.

However, before we do that, we will start with some definitions: .

## LEARNING SPOT



### Definitions of key terms:

There are numerous definitions available for the key terms below. Some examples include:

#### mHealth:

- Use of mobile devices, including phones, smartphones, and tablets, for health (Jongbloed et al; 2015)
- The practice of medical and public health via mobile communication device (Catalini et al; 2013)
- Medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants and other wireless devices (WHO Global Observatory for eHealth, pg 6).

#### eHealth:

- Use of internet for health, for example, electronic medical records (eMR) and Web 2.0 initiatives (Jongbloed et al; 2015)
- The transfer of health resources and health care by electronic means (Catalini et al; 2013)
- The use of information and communication technologies (ICT) for health (WHO).

#### Telehealth:

- Use of electronic information and telecommunications technologies to support long-distance healthcare (Jongbloed et al; 2015).

#### Telemedicine:

- Telemedicine refers to online medical services, such as online medical appointments by trained health professionals (Rost et al; 2020)

These definitions may still leave you wondering about the differences and overlaps between these terms.

In simple terms, when it comes to **eHealth** and **mHealth**, while both play a role in supporting healthcare through electronic means, mHealth makes use of mobile devices such as mobile phone or tablets to do so, whereas this is not necessarily the case with eHealth. Essentially, mHealth applications improve the delivery of healthcare information to researchers, practitioners and patients through mobile devices. eHealth however, is a much broader term, including for example, technology such as electronic health records, patient administration systems and lab systems.

When it comes to **telehealth** and **telemedicine**, telehealth is the broader term. Telemedicine refers solely to remote clinical services and provides a way of treating patients located in remote areas, away from clinicians. Telehealth is broader and refers to both clinical and remote non clinical services such as providing training and continuing medical education.

All have the aim of improving the quality, efficiency and cost of healthcare by a variety of electronic means. ([www.talkingmedicines.com](http://www.talkingmedicines.com).)

This module focuses on mHealth specifically.

## 2. How can mHealth be used?

You may be wondering about the different ways in which mHealth could be used to support the adolescents and young people you are working with. mHealth can be used in numerous ways to support patient health. It has been argued that rather than being seen as standalone solutions, mHealth strategies should be viewed as complementary strategies that can be integrated into existing health system functions and assist in achieving the health system goals laid out by the World Health Organisation (WHO), of health service provision; a well performing health workforce; a functioning health information system; cost effective use of medical products and technologies; and accountability and governance. The WHO has identified key ways in which mHealth has been used or applied, and its mHealth Technical Evidence Review Group (mTERG) categorizes mHealth applications by the functions that they fulfill or support. The table below provides an adapted version of this categorisation, demonstrating the range of ways mHealth can be used.



Common mHealth and ICT application areas	Examples of mHealth applications	Examples of mHealth methods
<b>Financial transactions and incentives</b>	<ul style="list-style-type: none"> <li>• Conditional cash transfers</li> <li>• Insurance</li> <li>• Payment for services</li> <li>• Performance based incentives</li> <li>• Savings accounts</li> </ul>	<ul style="list-style-type: none"> <li>• Mobile money transfers and banking services</li> <li>• Transfer of airtime minutes</li> </ul>
<b>Information systems</b>	<ul style="list-style-type: none"> <li>• Data collection and reporting</li> <li>• Service delivery statistics</li> <li>• Household surveys</li> <li>• Surveillances</li> <li>• Electronic health records</li> <li>• Registries / vital events tracking</li> </ul>	<ul style="list-style-type: none"> <li>• Short Message Service (SMS)</li> <li>• Voice communication</li> <li>• Digital forms</li> <li>• Mobile web (WAP/GPRS)</li> </ul>
<b>Service delivery and support</b>	<ul style="list-style-type: none"> <li>• Electronic decision support</li> <li>• Disease diagnosis / Point-of-care diagnostics</li> <li>• Disease management</li> <li>• Disease prevention</li> <li>• Provider to provider communication</li> <li>• Referrals</li> <li>• Remote client to provider consultations (telemedicine)</li> <li>• Remote psychosocial support and counselling (by peer or provider)</li> </ul>	<ul style="list-style-type: none"> <li>• Mobile Web (WAP/GPRS)</li> <li>• Stored information 'apps'</li> <li>• Interactive Voice Response (IVR)</li> <li>• Mobile phone camera</li> <li>• Tethered accessory sensors, devices</li> <li>• Built-in accelerometer</li> <li>• Short Message Service (SMS)</li> <li>• Multimedia Messaging Service (MMS)</li> <li>• Mobile phone camera</li> <li>• Telephone calls</li> </ul>
<b>Social and behavior change communication</b>	<ul style="list-style-type: none"> <li>• Appointment reminders and alerts</li> <li>• Health education or promotion</li> <li>• Hotlines and information services</li> <li>• Mass messaging campaigns</li> <li>• Treatment adherence alerts and reminders</li> </ul>	<ul style="list-style-type: none"> <li>• Short Message Service (SMS)</li> <li>• Multimedia Messaging Service (MMS)</li> <li>• Interactive Voice Response (IVR)</li> <li>• Voice communication/Audio clips</li> <li>• Video clips</li> <li>• Image</li> </ul>
<b>Supply management</b>	<ul style="list-style-type: none"> <li>• Consultant feedback on service quality</li> <li>• Human resource management</li> <li>• Provider training and education</li> <li>• Provider work planning and scheduling</li> <li>• Supportive supervision</li> </ul>	<ul style="list-style-type: none"> <li>• Interactive electronic client lists</li> <li>• Mobile phone calendar</li> <li>• Short Message Service (SMS)</li> <li>• Multimedia Messaging Service (MMS)</li> <li>• Interactive Voice Response (IVR)</li> <li>• Voice communication</li> <li>• Audio or video clips, images</li> <li>• Web-based performance dashboards</li> <li>• Global Positioning Service (GPS)</li> </ul>
<b>Workforce development and performance support</b>	<ul style="list-style-type: none"> <li>• Consultant feedback on service quality</li> <li>• Human resource management</li> <li>• Provider training and education</li> <li>• Provider work planning and scheduling</li> <li>• Supportive supervision</li> </ul>	<ul style="list-style-type: none"> <li>• Interactive electronic client lists</li> <li>• Mobile phone calendar</li> <li>• Short Message Service (SMS)</li> <li>• Multimedia Messaging Service (MMS)</li> <li>• Interactive Voice Response (IVR)</li> <li>• Voice communication</li> <li>• Audio or video clips, images</li> <li>• Web-based performance dashboards</li> <li>• Global Positioning Service (GPS)</li> </ul>

Table 1: Categorization of mHealth applications (adapted from WHO; and Labrique et al; 2013)

In this module, we will be focusing particularly on social and behavior change communication, and support (within service delivery and support)

## How have mHealth tools been used with young people?

Text messaging has been found to be the most popular form of mobile phone communication, particularly among young people. More recently, platforms with enhanced features, such as WhatsApp have become more popular as they become more accessible. mHealth tools have predominantly been used to facilitate alerts and reminders (eg. regarding appointments, adherence); for client education and behavior change communication ie. as a health promotion tool; and for psychosocial support and counselling. What are some of the advantages and disadvantages of using mHealth tools?

### Advantages

- **Attractive** - they are attractive to young people – young people enjoy using digital tools and it may be relatively easier to engage them in this way
- **Innovative** - they can offer a creative and innovative approach to engaging young people
- **Reach and scale** - they can transcend access barriers and increase reach – young people across a wide geographical area can be reached and they offer a way to engage hard to reach groups
- **Convenience** – related to this, mHealth tools can provide a more convenient way for users to receive information and support without visiting a health facility
- **Flexibility** - unlike face to face information and support, mHealth options may offer more constant availability and more immediate support
- **Cost effective** - they may offer a more cost-effective way to provide information and support that does not require face to face engagement
- **Anonymity and stigma** – use of mHealth tools offer adolescents and young people anonymity which may make it easier for them to seek information or advice on sensitive issues. When dealing with a stigmatized illness like HIV, this may be particularly important. The more anonymized interaction afforded by mHealth tools may facilitate help-seeking behavior.
- **Skills and empowerment** – it has been argued that using mHealth tools allows young people to improve their digital skills and can help them feel empowered to express themselves.

### Disadvantages:

- **Risk of exclusion** – while we have seen how mHealth approaches can increase access and reach, it is also possible that they can have the opposite effect and increase exclusion. This may mean that those most in need of these interventions, may find it harder to access them. This could be the case for:
  - Those who do not have access to technology ie. A phone, battery, charger, electricity, network signal, airtime
  - Those with low literacy or poor digital skills
  - Those who are unaware of these approaches
  - Younger adolescents – it has been found that those 15 years and younger have poor access to mobile tools limiting their ability to access information and support
- **Technological limitations** – a significant and ongoing barrier to optimal use of mHealth tools remains the unreliability of connectivity and in some cases electricity supply in LMICs, which compromises continuity, engagement and quality of service.
- **Loss of non-verbal cues and relationships** – use of mHealth tool for interaction and support makes it very difficult to pick up the non-verbal cues that a peer supporter might usually pick up from a young person receiving support. It may also be more difficult to build rapport and establish a relationship using only an mHealth approach.
- **Ethics, confidentiality and privacy** – this may be an issue particularly in low-resource settings where a young person may be sharing a phone with another family member. This raises concerns regarding other family members inadvertently seeing sensitive or confidential information. Private Facebook groups can work well, but privacy concerns remain. Secure (password protected) logins and the use of pseudonyms /avatars can help to maintain privacy and anonymity.
- **Data security** – robust systems are needed to ensure data breaches do not occur

## Planning, designing and implementing your mHealth intervention:

Below are a few key steps and questions to consider as you develop and implement your mHealth intervention:

### 1. What is your intervention?

Think about what it is you're trying to achieve and what intervention you plan to use for this eg. Are you trying to increase knowledge in adolescents; are you aiming to provide psychosocial support? Do you plan to achieve your goal through group peer support, or individual peer support, or by sharing information resources?

### 2. What kind of mHealth platform would best accommodate this?

Once you have decided what you want to do, you will need to think about the best platform for this purpose eg. SMS may work well for appointment or adherence reminders, whereas a WhatsApp group may work better for group support, and telephone calls might be best for individual support.

**Helpful hint:** The table below provides an overview of some of the key possible platform options, their benefits and limitations, and best practices for using them, and can assist you in your decision-making in this regard. For a greater range of options, see PATA (2021).

Intervention	In practice	Benefits	Limitations	Best practices
<b>Telephonic interventions</b>				
<p><b>Telephonic support or hotline service</b></p> <p><b>Description:</b> Phone calls from organisation for case management, staying connected, and following up with clients; Phone calls from clients to get information and support</p> <p><b>Purpose:</b> Check-ins can support adherence counselling, appointment reminders, and information dissemination</p>	Linkage officers, case managers, or peer supporters can call to provide one-on-one support, or to track and trace when a scheduled appointment is missed.	<ul style="list-style-type: none"> <li>• Direct and personal phone call</li> <li>• Can take place at a negotiated convenient time</li> <li>• Direct one-to-one communication is easier to initiate and organise than groups</li> <li>• Can be used as a peer support intervention</li> <li>• Client can call into hotline for support as needed</li> </ul>	<p>Client requires airtime and access to personal/private phone</p> <ul style="list-style-type: none"> <li>• One-on-one interventions are time-consuming and human-resource intensive; not realistic to manage entire case load</li> <li>• Call may require arranged timing to ensure privacy</li> <li>• Hotlines are reliant on clients initiating engagement</li> </ul>	<p>For calls, prioritise cases and make calls on a scheduled rotational basis or on a needs-to basis. Calls should have clear objectives:</p> <p><b>Scheduled</b></p> <ul style="list-style-type: none"> <li>• High VL</li> <li>• Newly disclosed</li> <li>• Check-ins</li> </ul> <p><b>Needs-to</b></p> <ul style="list-style-type: none"> <li>• Alert-referral, e.g. mental health or social protection</li> <li>• LTFU trace</li> </ul> <p>Helplines/hotlines should be used by clients for urgent response in case of emergency or specific queries.</p>

<p><b>SMS (short message service) messaging</b></p> <p><b>Description:</b> Text messages from organisations to clients en masse or individually with reminders for appointments, closed group, or family days</p> <p><b>Purpose:</b> SMSs can provide motivational messaging and share information or links to information and resources</p>	<p>Linkage officers, case managers, or peer supporters can send individual SMS from phone and forward onward. With a bulk messaging package, contact information and message content can be captured in an Excel spreadsheet and e-mailed or uploaded for immediate sendin</p>	<ul style="list-style-type: none"> <li>• Client does not need data or internet to receive message</li> <li>• Anonymity of group members</li> <li>• Messages can be scheduled against a set time</li> <li>• Organisations can send SMSs in bulk to large groups from a phone or directly from a computer database</li> <li>• Programme can provide analytics</li> </ul>	<p>SMSs contains only text (no pictures or videos) and are limited to 160 characters</p> <ul style="list-style-type: none"> <li>• Text-heavy; not very interactive or personalised</li> <li>• Initiator requires SMS bundle and android featured phone</li> <li>• Not zero-rated</li> </ul>	<p>These tools are useful, but organisations should explore zero-rated (no cost) SMS tools and platforms for clients that ensure:</p> <ul style="list-style-type: none"> <li>• an inexpensive way to send bulk messaging to clients based on a package</li> <li>• sharing generic, but essential, public health messaging such as HIV/TB/SRHR and Covid-19</li> </ul>
WhatsApp-based interventions				
<p><b>WhatsApp groups</b></p> <p><b>Description:</b> Internet based app that allows digital text, chat, and media sharing (voice messages, photos, and video) with individuals or groups</p> <p><b>Purpose:</b> WhatsApp enables digital multimedia communication through a platform that is already ubiquitous in many countries</p>	<p>Linkage officers, case managers, or peer supporters can text or call individuals, as well as set up defined groups to send messages, share media or links, and have group discussions eg. WhatsApp to support group chats, send motivating messaging, send ART or clinic visit reminders, and share links to information and or resources.</p>	<p>WhatsApp is widely used and accepted as communication platform by a majority of people</p> <ul style="list-style-type: none"> <li>• Bi-directional and interactive communication within a group</li> <li>• Groups are managed by one admin</li> <li>• No airtime is needed; no cost on cellular network</li> <li>• Can be voice- and video-enabled</li> <li>• Multimedia possible with gifs, memes, links, or videos</li> <li>• Can do group call with small groups (up to 8) but primarily used as a group text-based communication platform</li> </ul>	<p>Client requires a smartphone device, mobile connection, and data or Wi-Fi access to use</p> <ul style="list-style-type: none"> <li>• Not anonymised: names and numbers of group members are shared in an established group</li> <li>• Groups set up by one admin (phone number), which can create challenges when person leaves</li> <li>• Groups are open to abuse and or bullying; they need to be curated and moderated by admin to safeguard against privacy and confidentiality risk</li> <li>• Group calls limited to 8 members but due to higher data use, not conducive to video/voice-enabled features; interaction remains largely text-based</li> <li>• Long-term sustainability challenges with cost for users; data vouchers cannot guarantee data is used for the intended purpose</li> </ul>	<p>WhatsApp groups are useful to provide text-based support within a closed group when customised platforms are not possible. Risks that must be managed are opt-in/opt-out options for members, group admins' use of organisational devices and credentials (not personal accounts and devices), short-term data cost support, and incentivising engagement.</p>

Mobile App-based interventions				
<p><b>Facebook Live</b></p> <p><b>Description:</b> A feature of the Facebook social network that uses the camera on a computer or mobile device to broadcast real-time video</p> <p><b>Purpose:</b> Facebook Live can be used for virtual information sessions and support groups</p>	<p>Live broadcasters can decide who on Facebook can see their video and use this during a planned session, meeting, or event.</p>	<p>Sessions can be run and established in a closed group – so they can be contained</p> <ul style="list-style-type: none"> <li>• Camera and sound can be utilised for more interactivity and connection</li> </ul>	<p>Client must have or create a Facebook account to use the feature</p> <ul style="list-style-type: none"> <li>• Client requires stable internet access to use effectively</li> </ul>	<p>Facebook Live sessions should be organised in advance and facilitated by regular group facilitator against a set agenda. Facilitators should institute group rules (e.g., only those speaking leave cameras and mikes on for improved quality).</p>

Table 2: Mapping tool – a matrix of mHealth tools and strategies (adapted from PATA (2021))

### 3. How will you design and plan implementation of your mHealth intervention?

Once you have decided on your platform and intervention, you will need to think through exactly how it will be used and implemented. Eg. If you're running WhatsApp groups, will you have a set time each week where you encourage the group to 'meet' and share, or will the group be open for discussion all the time? How will you moderate the group? What will the cost implications be? How will you keep adolescents interested in the group? If you're providing one to one support, how will you schedule those calls? What will you do if the adolescent is not available to take the call? How will you manage connectivity challenges?

**Helpful hint:** The section below on how to engage adolescents and youth in mHealth applications can give you some ideas on how to make your intervention more appealing to young people.

#### How do we engage adolescents and youth in mHealth applications?

Despite the fact that mobile interaction holds great appeal for youth, there is evidence that it remains challenging to ensure sufficient and ongoing engagement of youth in the use of mHealth tools to enable behavior change. Below are strategies that have been identified as being promising for maximizing the appeal and relevance of mHealth interventions for young people, and ensuring they remain engaged in using them (Hightow and Weidman; 2021, UNICEF; 2017b, Jeminiwa et al; 2019).

The below points provide some useful guidance to consider when planning or designing mHealth interventions for adolescents.



1	Theory-based	Theory can help to guide development of your mHealth intervention or parts thereof. mHealth interventions that have included a theoretical framework, have shown greater impact on outcomes of interest. Theories you could consider include those guiding health behavior change, as well as those that are specific to digital interventions.
2	Ease of use and acceptability	Relates to app usability and ease of use; and app accessibility in terms of cost, and degree of adolescent control
3	Tailoring	Refers to the use of personal (social, psychological, medical, behavioural, demographic) data to tailor an intervention to suit the profile of the user. Provision of a more differentiated, relevant intervention can assist in achieving the desired behavior change and improved outcomes. Tailoring can help to determine what content to deliver, the context or frame of delivery, as well as the method or channel of delivery eg. You may wish to tailor your approach according to risk - for those adolescents with unsuppressed viral loads compared to those with suppressed viral loads; or have different approaches for older vs younger adolescents.
4	Provision of self-monitoring/ feedback	This encourages self-reflection and awareness, can serve as a cue to action, can be motivational and reinforce behaviours if positive results are seen, and can also make young people more aware of their risk.
5	Fostering support	Features of mHealth interventions that facilitate access to social support have been found to increase youth engagement. Interventions that use existing online social networks eg. Facebook, Twitter, are particularly promising because they have high levels of user retention and engagement. The ability of the mHealth tool to facilitate other forms of support eg. Support for behavior change, decision making and for specific conditions is important too.
6	Inclusion of 'push factors' (reminders and notifications)	Includes prompts (emails, SMS reminders) designed to promote continued user engagement with the mHealth tool.
7	Inclusion of game-based elements	Refers to the use of gaming elements such as game mechanics (e.g., competition, collaboration) and dynamics (e.g., points, rewards, incentives), for example earning points for taking a quiz, or for conducting self-assessments using the mHealth tool. Including game-based elements can make health activities fun, enjoyable, and understandable, thus increasing young people's motivation to engage with the mHealth tool.
8	Entertainment education	UNICEF reported that the preferred form of communication in the South African youth they surveyed was 'entertainment education' or fictional narratives to present information, change perceptions or stimulate conversations, with the inclusion of celebrities and other community champions to convey health messages seen as highly desirable.
9	Interactivity and aesthetic appeal	mHealth tools that are interactive and visually appealing help to ensure continued engagement as well as the transfer of knowledge. If young people are able to ask questions and receive instant responses; are able to comment on content; and are able to connect with other users, engagement is enhanced.
10	Safety, privacy and trust	Relates to app security, discretion and trustworthiness

Table 3: Top ten tips for engaging adolescent and youth in mHealth applications (adapted from Hightow-Weidman; 2021 and Jeminiwa et al; 2019)

## 4. How will you get adolescents to use your mHealth tool?

Once you are ready to roll out your new mHealth tool, think about how you will get adolescents to use it? Think about how you will make sure they are aware of it, and also how you ensure they know exactly how to use it – eg. How to join a group, how to post questions/comments. You may also want to address any concerns they might have, for example related to confidentiality, anonymity etc.

**Helpful hint:** The section below on how we market mHealth tools to adolescents can give you some ideas on how to make sure adolescents are aware of your tool.

### How do we market mHealth tools to adolescents?

Now that you have designed your mHealth intervention, you will want to make sure that young people use it, and the first step towards that is to make sure they are aware of it. There are a number of ways in which they can be promoted:

#### Digital channels:

- Working with the private sector to advertise tools on search platforms, through mobile network providers, and on social media platforms eg. Facebook and Twitter. This approach may be more suitable if you are planning a large scale intervention, rather than a localized intervention.

#### Health service providers:

- Health care providers are well placed to promote tools to patients who can really benefit from their use, however it is important to ensure that you have buy in from health providers through advocacy around the value of the tools and adequate training for health providers on their use.

#### Role models, champions and peer supporters:

- Local celebrities, ambassadors and peer supporters themselves provide an excellent way of promoting the use of mHealth tools through a trusted, admired and respected source. Here you can leverage the experience of young people who have accessed and used mHealth tools and can speak to the common apprehensions young people have and allay concerns. This may be the approach that is most accessible for you to use, and will be most appropriate if you are providing support to a known, closed group of adolescents.



## 5. How will you get feedback on your intervention?

Once you have been implemented your mHealth tool for a while, you will want to know whether adolescents are enjoying it, what is working well and not working well for them, and whether it is achieving its goal eg. Increasing adherence. From the beginning, it is good to think about how you will gather this information, what information you will gather, and over what time period.

**Helpful hint:** Module 7 of this toolkit will provide you with detailed information on how to go about evaluating an intervention, which can be applied here too.

### Case examples of mHealth projects:

We will now go through some real examples of mHealth projects that have been implemented across Africa, examining the approaches they have taken, and what they found, in addition to highlighting some of the key lessons learnt. Numerous studies have piloted mHealth tools to examine feasibility and acceptability of using these tools with adolescents – in fact the majority of papers in this area report on feasibility and acceptability. Studies have used different platforms – in some cases existing platforms (eg. WhatsApp) and in other cases, platforms have been developed specifically for the project.

Henwood et al; 2016  
South Africa - Khayelitsha

#### What was it?

Virtual support group using MXit social networking

#### Who was it for?

Adolescents and young people 12-25 years

#### What were they trying to do with the mHealth tool?

Support AYPLH in between monthly/bimonthly club meetings

#### What did the study report on?

Acceptability and use

#### What did they find?

Usage was low overall. 65% were aware of the chat-room and 39% knew how to access it. 34% used the chat-room at least once, 20% had visited the chatroom in the past month, and 29% had used MXit to have private conversations with other club members. 57% used the chat-room to get advice. They also wanted reliable information and to share experiences with peers.

#### What worked well?

84% of all respondents felt that offering a service outside the youth club meetings was important and wanted it to continue

#### What didn't work well?

Barriers to use included the cost of using social media platforms; the need for anonymity; preference for other platforms, such as Facebook and WhatsApp and an inability to see the chat room history.

Henwood et al (2016), used a social networking platform called MXit in their project. At one stage, this was very popular and well-used by young people, however, as you can see from the findings, the participants recommended the use of more popular platforms like Facebook and WhatsApp. This highlights the importance of using the right platform for your mHealth intervention. Some initial formative research or focus groups with young people can help you to ensure your intervention is topical and well aligned with their preferences. Peer supporters themselves will also be a great source of guidance on this.

This study also highlights the need for anonymity. Keeping their identity secure is a key concern for young people, and is especially pertinent when working with AYPLH, given the associated stigma. They want to feel safe and protected when they engage on an mHealth platform and putting measures in place to ensure this, as well as communicating this to young people is key.

Finally, the participants highlighted the desire to see the chat room history. Many young people who may be more 'passive' in a chat room, still gain enormously from being there, by reading and learning from information that has been posted, in response to questions they may have been reticent to ask. In addition, being able to see the 'chat' highlights young people's need to feel connected and part of a community, also a key component of group support, whether in person or virtual.

Chory et al; 2021  
Kenya

#### What is it?

WhatsApp group and individual peer mentor led support intervention

#### Who is it for?

ALHIV 10 to 19 years (Groups 10-14 years and 15-19 years)

#### What were they trying to do with the mHealth tool?

Support mental health and adherence in ALHIV

#### What did the study report on?

Feasibility and acceptability

#### What did they find?

Overall, high levels of acceptability

#### What worked well?

All participants reported positive experiences in the WhatsApp chats and reported that these groups created a feeling of community and peer support among ALWH that for many had not been available to them before. They liked the anonymity it provided, enabling engagement while maintaining privacy. All participants supported the potential expansion of the mobile-based counselling and peer support programme to other clinics

#### What didn't work well?

Barriers to use included household and school responsibilities; power outages, insufficient phone credit, internet problems, phone sharing with caregivers and poor digital skills.

Chory et al (2021) also examined the acceptability of their intervention, and we see again the importance of anonymity and privacy for youth. One of the biggest challenges to mHealth interventions – poor electricity supply and connectivity – is highlighted here. In addition, we note a common barrier with young people who will be less likely to own their own phone and may be sharing one with a caregiver – leading to intermittent access as well as concerns around privacy. Poor digital skills may also be an issue and this could ultimately create more exclusion for some adolescents and young people.



Twimukye et al; 2021  
Uganda

**What is it?**

Mobile phone-based technology that provides text messages or interactive voice response functionalities through a web interface and offers 4 modules of support (Call for Life Uganda).

**Who is it for?**

AYPLHIV 18 to 25 years

**What were they trying to do with the mHealth tool?**

Promote adherence to ART

**What did the study report on?**

Acceptability and feasibility

**What did they find?**

Tool was acceptable and feasible

**What worked well?**

AYPLHIV indicated that they thought the tool assisted in improving their adherence to medication through treatment reminders; strengthened their relationship with their clinician; assisted them in overcoming feelings of stigma and increased their knowledge about keeping healthy. They found the tool easy to use and felt reassured by the privacy features.

**What didn't work well?**

Challenges included technical issues with the app; phone access issues eg. Lost or stolen phones; and fear of HIV stigma (being seen/heard on calls). Recommendations for improvements included that in addition to digital solutions, other support, including the promotion of peer support meetings and the establishment of a designated space and staff members for youth, was also important.

The study by Twimukye et al (2021) highlights the fact that ideally, if possible, mHealth interventions should not replace face to face contact with young people. There may be situations where this is necessary (eg. COVID-19 lockdowns, significant geographical distance, areas of conflict), and where virtual support offers the only way to reach a young person. However, outside of these situations, evidence suggests that mHealth interventions will likely work better if they complement face to face support and contact. As you can see in this study, young people still craved the opportunity to meet with one another and have a safe and relevant space that meets their needs.

Few studies have gone beyond piloting and assessing feasibility and acceptability to examine the impact of mHealth interventions on key outcomes. However, this is beginning to change and increasingly, studies are looking at whether mHealth interventions lead to significant change. Findings have been mixed and suggest that there are still learnings and improvements needed.

Hacking et al; 2019  
South Africa

**What is it?**

Peer mentorship via mobile phones (AYLHIV stable on treatment supporting newly diagnosed AYLHIV) via SMS, call and WhatsApp

**Who is it for?**

Adolescents and young people newly diagnosed with HIV, 12-25 years

**What were they trying to do with the mHealth tool?**

Increase engagement with HIV services

**What did the study report on?**

Evaluation of participant engagement with HIV services and acceptability of programme

**What did they find?**

Linkage to care and ART initiation was substantially higher in the intervention group (receiving the virtual peer support) than the control group. Retention in care was similar for both groups at 6 and 12 months and viral load suppression was similar at 4 months. The intervention group had a substantially higher viral load uptake rate. The programme was found to be acceptable.

**What worked well?**

The mentees provided positive feedback about the mentorship program and reported being comfortable talking to their mentors about disclosure issues and accepting their HIV status. Communication was primarily through phone calls or in some cases face-to-face interactions.

**What didn't work well?**

SMS or WhatsApp chat used less frequently for communication / support.

In Hackin et al (2019), we see how the intervention led to significant improvements in some areas, but not all. Overall, it seems that initially, the mHealth intervention led to change, but that it is more challenging to achieve the longer-term changes we want to make eg. Adherence and retention. This may be related to ensuring ongoing engagement with the mHealth tools, and this will need to be a focus going forward.



## Key lessons learnt

The below provides a helpful summary of some of the key lesson learnt which we have discussed in this module. These are grouped across five main areas.

### Take a multidimensional approach:

- Use an integrated approach eg. Online peer support combined with information resources
- Combine with face to face services where possible. This may be particularly important in LMIC settings where internet connectivity / phone access / airtime access may be compromised.

### Make it adolescent-friendly

- Ensure you get adolescent input on the design/approach
- Use relevant and familiar technology – see Table 2 above for assistance in selecting an appropriate platform for your purpose.
- Make it relatable, engaging and fun – much like their relationship with their peer supporter, young people will be more likely to engage with material that is meaningful to them and relatable, with personalized stories and accounts. Material should also be visually appealing, bright and attractive, with a gaming element if possible.
- Social features (where young people can engage with one another) and entertainment education encourage high levels of engagement
- Keep it short, clear and easy, with concrete examples, to aid understanding
- Use of incentives and reminders can encourage engagement with mHealth tools
- Free access to mHealth tools is key to ensure uptake

### Safety, privacy and security:

- Safeguarding measures need to be put in place to ensure privacy and data security
- Use highly encrypted programmes like WhatsApp.
- Clarify the importance of confidentiality.
- Ask participants to use a password on their phone.
- Ask participants to delete traces of calls if using someone else's phone.
- Do not send data via text message.
- Mechanisms to collect accurate information about age and location of users should be put in place to assist in the creation of safe spaces for adolescents online
- Young people's interactions with one another need to be moderated to prevent cyber bullying, harassment, hate speech and other forms of abuse
- Cyber safety literacy should be incorporated in mHealth service offerings and young people should be educated on identifying and reporting unsafe behaviour

### Evaluation and learning:

- Evaluate impact – be sure to build in evaluation of the impact of your tool (see module 7 for more guidance on evaluation) from the outset, in order that you can make evidence-based decisions on how to improve your offering, or determine the impact of your intervention
- Longitudinal approach – many evaluations of pilot mHealth interventions exist, showing data on initial impact. However more data is needed on longer term impact. If possible, try and plan for longitudinal follow up.
- 'Test and learn' approach – WHO advocates for a test and learn approach which requires being flexible in the design of mHealth interventions and being willing to make adjustments as you implement and evaluate, allowing you to optimize your offering as quickly as possible.

### Infrastructural support:

- Provide training to both users and facilitators (peer supporters), to ensure both groups are comfortable and confident using the mHealth tool
- With more users it becomes increasingly difficult to maintain satisfactory experiences and trust in the service by young people. Adequate financial and human resource allocation is needed to maintain service quality if you plan to scale up the service
- Consider sustainability – when designing your mHealth tool, think about what will be required in the long term to sustain it – costs of maintenance and upgrades etc. Design with this in mind so that you are able to keep the tool available in the long-term. This may mean a more modest approach at the outset.

## KEY MESSAGES



1. Adolescents and young people's engagement with technology is increasing, providing unprecedented opportunities for virtual delivery of health services
2. mHealth can be used as a complementary strategy, alongside face to face services, to deliver social and behavior change communication and peer support
3. mHealth tools are appealing to young people and offer an innovative, convenient and flexible way for them to engage with health services; however they are limited by unreliable access to phones, data and connectivity, which can increase exclusion
4. When planning an mHealth intervention, key elements to consider include ensuring it is adolescent-friendly, accessible, and attending to safety, privacy and security issues
5. Research has shown mhealth interventions to be feasible and acceptable for use with young people, but evidence of their impact on key outcomes is more limited.

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## Additional Resources:

### Research studies

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### Toolkits:

1. mHealth Design Toolkit Ten principles to launch, develop and scale mobile health services in emerging market [https://www.gsma.com/mobilefordevelopment/wp-content/themes/theme\\_mobilefordevelopment/mhealth/GC\\_GSMA\\_FinalBooklet.pdf](https://www.gsma.com/mobilefordevelopment/wp-content/themes/theme_mobilefordevelopment/mhealth/GC_GSMA_FinalBooklet.pdf)
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