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 15-24-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 inequality, 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:

**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.)

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.

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<th>Examples of mHealth applications</th>
<th>Examples of mHealth methods</th>
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<td>• Savings accounts</td>
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<td>Information systems</td>
<td>• Data collection and reporting</td>
<td>• Short Message Service (SMS)</td>
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<td>• Service delivery statistics</td>
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<td>• Digital forms</td>
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<td></td>
<td>• Surveillances</td>
<td>• Mobile web (WAP/GPRS)</td>
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<td>• Electronic health records</td>
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<td>• Registries / vital events</td>
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<td>Service delivery and support</td>
<td>• Electronic decision support</td>
<td>• Mobile Web (WAP/GPRS)</td>
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<td>• Disease diagnosis / Point-of-care diagnostics</td>
<td>• Stored information ‘apps’</td>
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<td>• Disease management</td>
<td>• Interactive Voice Response (IVR)</td>
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<td>• Disease prevention</td>
<td>• Mobile phone camera</td>
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<td>• Provider to provider</td>
<td>• Tethered accessory sensors, devices</td>
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<td>communication</td>
<td>• Built-in accelerometer</td>
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<td>• Referrals</td>
<td>• Short Message Service (SMS)</td>
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<td>• Remote client to provider</td>
<td>• Multimedia Messaging Service (MMS)</td>
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<td></td>
<td>consultations (telemedicine)</td>
<td>• Mobile phone camera</td>
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<td>• Remote psychosocial support</td>
<td>• Telephone calls</td>
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<td>and counselling (by peer or</td>
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<td>provider)</td>
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<td>Social and behavior change communication</td>
<td>• Appointment reminders and</td>
<td>• Short Message Service (SMS)</td>
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<td>alerts</td>
<td>• Multimedia Messaging Service (MMS)</td>
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<td></td>
<td>• Health education or promotion</td>
<td>• Interactive Voice Response (IVR)</td>
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<td>• Hotlines and information</td>
<td>• Voice communication</td>
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<td></td>
<td>services</td>
<td>• Audio or video clips, images</td>
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<td>• Mass messaging campaigns</td>
<td>• Image</td>
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<td>• Treatment adherence alerts</td>
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<td>and reminders</td>
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<td>Supply management</td>
<td>• Consultant feedback on service quality</td>
<td>• Interactive electronic client lists</td>
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<td>• Human resource management</td>
<td>• Mobile phone calendar</td>
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<td>• Provider training and</td>
<td>• Short Message Service (SMS)</td>
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<td></td>
<td>education</td>
<td>• Multimedia Messaging Service (MMS)</td>
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<td></td>
<td>• Provider work planning and</td>
<td>• Interactive Voice Response (IVR)</td>
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<td></td>
<td>scheduling</td>
<td>• Voice communication</td>
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<td></td>
<td>• Supportive supervision</td>
<td>• Audio or video clips, images</td>
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<td>• Interactive electronic client lists</td>
<td>• Web-based performance dashboards</td>
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<td>• Mobile phone calendar</td>
<td>• Global Positioning Service (GPS)</td>
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<tr>
<td>Workforce development and</td>
<td>• Consultant feedback on service quality</td>
<td>• Interactive electronic client lists</td>
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<td>performance support</td>
<td>• Human resource management</td>
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Table 1: Categorization of mHealth applications (adapted from WHO, and Lubrique et al; 2013)
How have mHealth tools been used with young people?

Test 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 (e.g., regarding appointments, adherence), for client education and behavior change communication (e.g., 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 in: 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).

<table>
<thead>
<tr>
<th>Intervention</th>
<th>In practice</th>
<th>Benefits</th>
<th>Limitations</th>
<th>Best practices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Telephonic support or hotline service</strong></td>
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</tr>
<tr>
<td><strong>Description</strong></td>
<td>Phone calls from organisation for case management, staying connected, and following up with clients; Phone calls from clients to get information and support</td>
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</tr>
<tr>
<td><strong>Purpose</strong></td>
<td>Check-ins can support adherence counselling, appointment reminders, and information dissemination</td>
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<tr>
<td><strong>Telephonic interventions</strong></td>
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<tr>
<td><strong>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.</strong></td>
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<tr>
<td><strong>Client requires airtime and access to personal/private phone.</strong></td>
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<tr>
<td><strong>On-one-one interventions are time-consuming and human-resource intensive; not realistic to manage entire case load.</strong></td>
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<tr>
<td><strong>Call may require arranged timing to ensure privacy.</strong></td>
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<tr>
<td><strong>Hotlines are reliant on clients initiating engagement.</strong></td>
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**For calls, prioritise cases and make calls on a scheduled rotational basis or on a needs-to basis. Callers should have clear objectives:**

- **Scheduled** - e.g. mental health or social protection
- **Newly disclosed** - e.g. LTFU trace
- **Check-ins** - e.g. alert-referral

**Needs-to**

- Alert-referral
- Social protection
- LTFU trace
- Help lines/Hotlines should be used by clients for urgent response in case of emergency or specific queries.
### WhatsApp-based interventions

<table>
<thead>
<tr>
<th>WhatsApp groups</th>
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<tbody>
<tr>
<td><strong>Description:</strong> Internet-based app that allows digital text, chat, and media sharing (voice messages, photos, and video) with individuals or groups.</td>
</tr>
<tr>
<td><strong>Purpose:</strong> WhatsApp enables digital multimedia communication through a platform that is already ubiquitous in many countries.</td>
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<tr>
<th>WhatsApp groups</th>
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</thead>
<tbody>
<tr>
<td><strong>Description:</strong> WhatsApp is widely used and accepted as communication platform by a majority of people.</td>
</tr>
<tr>
<td><strong>Purpose:</strong> WhatsApp enables digital multimedia communication through a platform that is already ubiquitous in many countries.</td>
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</table>

| Client requires a smartphone device, mobile connection, and data or Wi-Fi access to use. |
| *Not anonymised*: names and numbers of group members are shared in an established group. |
| Groups are managed by one admin. |
| All group members can voice- and video-enabled. |
| Group members can create challenges when person leaves. |
| Groups are open to abuse and bullying; they need to be curtailed and moderated by admin to safeguard against privacy and confidentiality risk. |
| Group calls limited to 8 members but due to higher data use, not conducive to video/voice-enabled features; interaction remains largely text-based. |
| Long-term sustainability challenges with cost for users; data vouchers cannot guarantee data is used for the intended purpose. |

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<th>Mobile App-based interventions</th>
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<tr>
<td><strong>Facebook Live</strong></td>
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<tr>
<td><strong>Description:</strong> A feature of the Facebook social network that uses the camera on a computer or mobile device to broadcast real-time video.</td>
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<tr>
<td><strong>Purpose:</strong> Facebook Live can be used for virtual information sessions and support groups.</td>
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| Live broadcasters can decide who can see their video and use this during a planned session, meeting, or event. |
| Sessions can be run and established in a closed group so they can be contained. |
| Camera and sound can be utilised for more interactivity and connection. |

| Client must have or create a Facebook account to use the feature. |
| Client requires stable internet access to use effectively. |

| 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 miles on for improved quality). |

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### 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. Eq. 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.

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Table 2: Mapping tool – a matrix of mHealth tools and strategies (adapted from PATA (2021))
| 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 un-suppressed 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)
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.

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.
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 Hacking 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 m-Health 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.

References

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17. Twimukye, A., Naggrinya, A. B., Parkes-Ratanshi, R., Kasirye, R., Kiragga, A., Castelnuevo, B., ... & King, R. L. (2021). Acceptability of a Mobile Phone Support Tool (Call for Life Uganda) for Promoting Adherence to Antiretroviral Therapy Among Young Adults in a Randomized Controlled Trial: Exploratory Qualitative Study. JMIR mHealth and uHealth, 9(6), e17418.


22. www.takingmedicines.com

Additional Resources:

Research studies


Toolkits:

1. mHealth Design Toolkit Ten principles to launch, develop and scale mobile health services in emerging market https://www.gsmi.com/mobilefordevelopment/wp-content/themes/theme_mobilefordevelopment/mhealth/GC_GSMAMFinalBooklet.pdf


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