Digital Mental Health 101: What Clinicians Need to Know When Getting Started

This guide is an introduction to the broad considerations that should be understood by mental health professionals and patients alike when engaging with mobile health (mHealth) solutions.

Part 2. Applying mHealth: Identifying and Supporting the Use of Apps

Clinical Applications and Overview of Considerations within Specific Patient Populations and Settings

A. Outpatient Psychiatric Setting

The vast majority of mental health apps currently available are intended for use in the outpatient ambulatory setting. Since the start of the COVID-19 pandemic, there has been a fivefold rise in demand for mental health treatment, while according to the 2021 GAO report, the U.S. is facing worsening shortages of mental health providers. Apps offer the potential to break down barriers to outpatient care such as accessibility, wait times, and costs.

These apps fall into various categories, varying from self-guided to being used in conjunction with a health care provider. Apps that provide digital therapy tools (e.g., electronic cognitive behavioral therapy (CBT) modules, virtual dialectic behavioral therapy (DBT) cards) and mindfulness tools (e.g., meditation, deep-breathing apps) can serve as an adjunct to psychotherapy or medication management or as scalable, stand-alone solutions to those who cannot access care. Ecological momentary assessment apps designed to capture patient's self-reported symptoms and moods in real time offer the potential to monitor and trend patients' symptoms over time. Studies have found that apps can provide valid assessments of symptomatology. A number of early promising studies examining smartphone-delivered psychological interventions have found them to be efficacious.

While much potential exists for the use of apps in the outpatient setting, studies have found that adoption of apps in outpatient psychiatric clinic settings remains low. One consideration is that mHealth apps are not being widely recommended by clinicians to their patients. A survey of mental health providers found that although providers report a high level of interest in using websites and mobile apps to support mental health treatment, only 19% recommended use of apps in practice. Several barriers to

the adoption of apps by providers have been identified, including concern for security and privacy and a lack of integration into the provider's clinical workflows. However, clinician involvement in technology use can result in better clinical outcomes and patient adherence.

Efforts to make digital integration a reality in the outpatient setting are underway. To date, several health systems are launching "digital clinics"—outpatient psychiatry clinics that integrate digital technology into patient care. These clinics utilize smartphone apps and wearable technology to improve treatment outcomes and enhance shared decision-making between patients and providers. While these innovative clinics offer potential, continued research is needed into the barriers highlighted in other sections, such as patient engagement and workflow challenges to support the success of these models.

B. Inpatient Psychiatric Setting

Barriers to utilizing apps in the inpatient setting currently exist, as most psychiatric inpatient units restrict patient use of mobile phones and computers. However, iPad app interventions can be made available and offer the potential to provide additional therapeutic support. Geriatric psychiatry units have utilized art programs on iPads to help manage agitation. And some inpatient units are now offering "digital hours" where patients can use their smartphones under supervision. See the specific clinical population sections below for use case examples of inpatient app interventions.

C. Telepsychiatry

Telemedicine is defined by the World Health Organization as "The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies … in the interests of advancing the health of individuals and their communities."

While telemedicine can be delivered on computers through web platforms, many telemedicine platforms are app-based and allow for patients to connect with mental health providers on smartphones or tablets through video conferencing and texting. The APA, in partnership with The American Telemedicine Association (ATA), has provided "Best Practices in Videoconferencing-Based Telemental Health" for further information.

D. Integrated Care Settings

Integrated care settings offer an opportunity to leverage mobile apps to enhance access to care, yet the uptake of these devices in this particular setting appears more limited. This may be linked to the comfort or discomfort that providers have in supporting use of these tools to promote care. Since the structure of integrated care in primary care settings often involves a behavioral health provider, this seems to be the individual best suited to support incorporating patient use of mobile apps into the standard of care. However, to do this, behavioral health providers and other members of the integrated team need to gain confidence in their ability to use mobile apps.

Studies that have explored the use of mobile apps in integrated care settings have identified challenges including needing more training for both patients and clinicians, limited comfort level in using apps, and time limitations. With rapid adoption of technology around COVID-19, it is possible these barriers may now be reduced.

With integrated primary care, there is an opportunity for mobile apps to be incorporated into the standard of care and to help mitigate issues with mobile app motivation.

Patients in integrated care settings have interest in using mobile apps to self-manage psychiatric conditions; however, understanding specific population factors that will promote successful integration of mobile apps into a clinical environment such as type of smartphone device (Android or iPhone), willingness to use data plans, education needs (both patients and providers), and self-management factors are likely to affect the success of such interventions.

Patients in integrated care settings have been reported to experience barriers including access to smartphones and unlimited data plans, regular use, sustained motivation, and availability of apps in multiple languages. When exploring apps for use by historically underserved populations in an integrated, primary care setting, cost can also be a significant factor that can create barriers to app use for patients.

E. Child and Adolescent Psychiatry Setting

Mental health apps offer hope to address a growing mental health treatment gap for children and adolescents. Children are exposed to mobile devices at increasingly younger ages, with one survey finding that 25% of children had their own smartphone or tablet and more than half of children spent over one hour per day on electronic devices. This opportunity has not gone unnoticed, as numerous mHealth apps targeting younger patients have flooded the market. Researchers are exploring the use of gamification in developing digital therapeutics for conditions such as attention-deficit/hyperactivity disorder (ADHD) in children. In 2020, EndeavorRx became the first FDA-approved ADHD auxiliary treatment via video game after a randomized controlled trial showed clinical improvement in attention-related impairment.

As with apps for other patient populations, there remains a need for more evidence-based interventions. A 2020 systematic overview paper found that while there was evidence of the effectiveness of digital CBT and anxiety and depression interventions, other interventions were inconclusive. Special considerations for providers prescribing child mental health apps include data privacy as well as assessing the need for parental consent and involvement before recommending an app. Privacy considerations are elevated in apps for children and adolescents.

F. Geriatric Psychiatry Setting

Within skilled nursing facilities, there exists an urgent need for support for patients with dementia. With the aging population on the rise, the prevalence of dementia is expected to triple by 2050. Hospital settings can be particularly challenging for older patient populations, who are more susceptible to

changes in environment. Digital solutions can help meet this need by providing scalable interventions that do not require the use of pharmacologic medications with heavy side effect burdens. A small-scale study examined the feasibility and acceptability of an iPad intervention referred to as “Simulated Presence Therapy” to support dementia care in an inpatient psychiatric hospital by showing patients prerecorded video messages from loved ones. Novel technological solutions are being explored to monitor behavioral symptoms in the home, including motion sensors and smart home technologies to monitor sleep disturbances, agitation, and wandering.

Special considerations for this patient population include age-related limitations in geriatric patients’ ability to adopt new technologies such as smartphones and tablets, and the creation of easy-to-use features for tasks such as video conferencing. Such interventions will need to consider additional factors such as adequate staff assistance to be successfully implemented.

G. Serious Mental Illness

Those with serious mental illness own smartphones and are as interested in apps as the rest of the population. There are fewer apps designed directly for conditions like schizophrenia or bipolar disorder, but some do exist. Apps for wellness, anxiety, and depression are all relevant and have roles in care for those with serious mental illness. There is also substantial research around apps for these conditions, and FDA studies to assess the role of these apps in care are underway.

Examples of apps: “The SMI Advisor was created by SAMHSA and the American Psychiatric Association. The app features all the available resources of the SMI Adviser website, which can help clinicians find answers about treating patients with serious mental illness diagnosis. The app offers educational resources to patients and families. SMI Adviser also produces My Mental Health Crisis Plan, an app that enables patients to create a psychiatric advance directive” (Pellek, 2022).

H. Emergency Psychiatric Settings and Patients in Crisis

mHealth has a role in crisis care as well. Suicide is the 10th leading cause of death in the United States, affecting all age groups (WISQARS (Web-based Injury Statistics Query and Reporting System), 2021). Digital tools offer the potential to create novel approaches to suicide prevention by 1) identifying people at risk, 2) creating scalable prevention programming, and 3) increasing access to real-time interventions. Researchers are exploring ecological momentary assessment apps to better identify risk factors for suicidality and monitor at-risk patients. One pilot study of an inpatient mobile app intervention for suicidal adolescents found that it was successful in reducing the incidence of post-discharge suicide attempts. To date, several safety plan apps have emerged that allow patients and providers to create digital copies of safety plans. Further, support hotlines such as NYC Well are beginning to offer mobile text support to those in crisis, potentially reducing barriers to those seeking confidential mental health support.

Not all apps are created equal, though. While a dearth of apps targeting suicidality have emerged on app stores, studies have highlighted the potential dangers of such apps. One systematic review of 126

suicide-focused apps identified that many apps were not consistent with best-practice guidelines for suicide prevention at best, and at worst, were potentially harmful, even encouraging risky behaviors in a crisis. In January 2022, the data sharing policies of the Crisis Text Line revealed that the organization was sharing anonymized data sets with an outside company and benefitting from the revenue from the sale of this data. These issues highlight the need for careful selection and consideration by clinicians and users before utilizing such resources.

I. Peer Support Psychiatry Resources

Peer support is a well-established approach to support recovery from mental illness and can be accessed through technology. Digital peer support is defined as live or automated support services delivered through a technology medium. Peer support has been shown to increase emotional support, increasing hope, reducing the feeling of isolation, and supporting community belongingness. Peer supporters (peer support specialists, recovery coaches) may also support people being served in accessing and using technology. They can serve as digital health navigators and teach digital health literacy skills.

J. Dual Diagnosis Psychiatry Setting

Apps for substance use disorders are common and have even received FDA approval. While the value of this approval has recently been questioned, for the purposes of this report, FDA approvals suggest there is some potential for benefit and a lower risk of harm. Many apps have chosen not to seek FDA approval (see section on regulatory discretion), and there are thousands to pick from. Most offer a combination of psychoeducation, symptom tracking, and anxiety/stress reduction techniques. Others are based around CBT or behavioral activation and many increasingly offer a coach or other non-licensed clinician to support use. Some utilize passive data and track GPS to highlight when a person may be near a risky environment (e.g., a liquor store).

Publicly available mental health apps—developed by the National Center for PTSD within the U.S. Department of Veterans Affairs (VA)—have been tailored to address both substance use disorders and PTSD—such as VetChange for alcohol use disorder and Stay Quit Coach for relapse prevention in those who have quit tobacco. These apps reduce use of the problematic substance use. Other apps within the VA App Store—such as PTSD Coach, Mood Coach, and COVID Coach—can allow patients to better manage symptoms of anxiety, depression, anger, and insomnia, which have comorbidities with substance use disorders. CBT-i Coach—which reduces insomnia—has additionally been used to reduce cannabis use. These apps are designed with elements of motivational interviewing, cognitive behavioral therapy, contingency management, community reinforcement, goal setting, and social bond facilitation.

K. Psychiatric Nursing Considerations

In nursing, one use of mHealth is to facilitate workflows in the hospital. For organizations that use the Epic EHR, nurses have access to an app called “The Brain” that keeps track of required documentation, medication, dressing changes, assessments, and other tasks necessary to provide comprehensive care to

their patients. In the psychiatric setting, this app helps with safety check documentation, medications, and sending important messages to physicians.

Nurses can help facilitate the implementation and adoption of mHealth within a health care system. In the most recent release of the American Association of the Colleges of Nursing Essentials, a document which explicitly outlines competencies for the nursing profession in practice and in information and health technologies is one of the 10 domains identified for nursing competencies. Included in this domain is ensuring that nurses at entry and advanced practice levels are able to describe, use, incorporate into delivery of care, communicate, and adhere to ethical and organizational policies when it comes to information and communication technologies.

In order to achieve these competency expectations, the profession must provide learning opportunities that readily adapt to the changing technological landscape. It is important to empower nurses to help them gain comfort and competence in the use of technology to promote patient care because they are often the patient's first line of contact, assisting in developing rapport and increasing trust in the health care process.

Goodness of Fit: Reviewing App Options

As detailed above, the breadth of available health-oriented apps in the various app stores covers a wide range of use cases designed with different types of users in mind. These apps, for example, may promote 1) clinician-to-clinician interaction (e.g., sharing patient data, consultative functions), 2) patient-to-clinician interaction (e.g., sharing or tracking symptom data and other pieces of the patient's electronic record), and 3) patient-facing behavior (e.g., for self-management of symptoms or other uses).

It should be noted that patient-facing apps designed to support a patient in the management of their own health do not always function in a vacuum. For instance, any ePHI information collected by these patient-facing apps can potentially be incorporated into clinical- or health-related care. However, the overarching use of this type of app is intended to support the patient without the need to incorporate its functionality with electronic tools used by the patient's clinician. In contrast, apps that are designed around patient-to-clinician interaction support and incorporate the use of the application with this relationship in mind**.**

A. Evaluation Models, Rating Systems, and Other Evaluative Tools and Concepts

1. The American Psychiatric Association App Evaluation Model

Recognizing the challenges of identifying the right apps for your practice, multiple entities have undertaken efforts to objectively characterize or recommend apps. The American Psychiatric Association's expert consensus-driven APA App Evaluation Model provides guidance for psychiatrists and other health care providers when choosing an app to recommend for patient use drawing from

earlier efforts to draft a framework for mental health app evaluation. Early iterations evolved into a consensus-driven framework and an online toolkit, APA App Advisor, with case examples and sample reviews. Because providers and patients may have differing needs and priorities, the guidance does not necessarily restrict or set quantifiable measures. Further, the high frequency of updates for consumer-available apps can lead to outdated ratings. It can also be difficult to quantify many of the metrics around apps that matter the most. For example, we want to find apps that are easy to use, but ease of use will vary from person to person (as outlined in the digital inclusion sections above). As a further example, the degree and nature of evidence required for an app in one use case are likely very different for a second use case.

Instead, open-ended questions allow providers and patients to assess an app at a moment in time to ensure fit with objectives. The goal is not for the clinician or patient to answer every single question, but rather to be aware of key considerations and use available knowledge to make an informed decision. These items include:

- Basic facts about the app and its developer
- Risks, privacy, and security
- Clinical evidence
- Ease of use
- Interoperability

These categories are meant to be considered in a hierarchical order with the intent that if an app is not accessible, then further considerations do not matter. By the same logic, if privacy and security protections are not acceptable, then the evidence, engagement style, and interoperability likewise do not matter.

Figure 2. APA App Evaluation Framework. Adapted from Torous, JB, Chan, DR, Gipson, SY-MT, et al. (2018).

The current version of the model was finalized in January 2020. The consensus-building process relied on an expert panel, convened by the APA and composed of a diverse representation of mental health and technology experts. The original framework (1.0) was discussed, evaluated, and changed. Panelists renamed the five hierarchical categories within the model and revised the questions embedded within each level. For example, “Background Information” was changed to “Accessibility.” “Privacy and Safety” was changed to “Privacy and Security.” “Evidence Base” was changed to “Clinical Foundation.” “Ease of Use” was changed to “Engagement Style.” “Interoperability” was changed to “Therapeutic Goal.” The newly revised framework contained a series of 42 questions in the various categories to assist individuals in evaluating mobile apps. This framework has been adopted by health systems and public entities that strive to apply APA’s model when determining which apps to recommend to patients or stakeholders.

Evaluating the Evaluation: Other Frameworks

In addition to the APA’s framework, several other resources have been developed to assist clinicians, researchers, and the general public in evaluating and exploring mental health apps. These approaches often differ as they seek to provide a score or direct recommendation that is counter to the goals of the APA framework of empowering individuals to make informed decisions. For instance, the American Psychological Association has convened a panel of its member-psychologists to review software and mobile applications. The intended audience for these reviews is other psychologists and the reviewers. They ultimately use their criteria to assign an overall rating of apps reviewed using a scale from 1-5. This

final score takes into consideration the purpose of the app, content appropriateness, cultural responsiveness, ease of use, and functionality.

Another resource offering reviews of apps is the website One Mind PsyberGuide. This website provides reviews for apps within three domains: “Credibility,” “User Experience,” and “Transparency.”

The Organization for the Review of Care and Health Applications (ORCHA) is a digital health review platform that uses a 350-point measure to collect information on health apps. Their model collects information pertaining to Clinical & Professional Assurance, Data & Privacy, and Usability & Accessibility for a particular app.

The Division of Digital Psychiatry at Beth Israel Deaconess Medical Center (BIDMC) operates the M-Health Index & Navigation Database, mindapps.org, that utilizes the questions of the APA framework and transforms them into a searchable database of mental health apps.

Many of the existing app evaluation frameworks, tools, and other resources (some of which are noted above) rely on some common themes explored within the empirical research pertaining to what might be important to know about a mobile app before using it. In general, however, these overarching themes encompass a multidimensional approach to evaluating apps. These dimensions, or functional categories, typically focus on components of an app’s usability, how it maintains a user’s privacy with respect to any health data collected, accessibility, any clinical or other evidence, design, and engagement with its content, and so on. Some of these tools offer a cumulative report of the application based on their framework, resulting in a valence or numeric score.

It is up to the clinicians applying these evaluative tools and methodologies to determine the criteria necessary for their practice. Ensuring information is timely and that reviews are updated recently are often a quick means to assess these resources. In addition to the above resources and tools, there are other more research-oriented products for mobile app evaluation that focus on screening apps for research purposes. While these will not be explored within this document, examples include the mHealth App Usability Questionnaire (MAUQ) and the Mobile App Rating Scale (MARS).

Outside of evaluation systems offered by professional associations, nonprofits, and other NGOs, the ratings systems with which users are probably most familiar are those included within commercial app stores such as the Apple App Store, the Google Play Store, and Samsung’s Galaxy Store. Often, app stores offer multiple layers of review. For instance, apps must follow specific app store rules and policies that can restrict the use of customers’ location and automatically generated data. Only customers who have downloaded the app can rate and review apps within the store. App stores will display aggregate scores of the reviews and allow consumers to sort and filter reviews based on cost, popularity, and other factors. App stores may also group apps together as part of a seasonal promotion. For example, the Google Play Store featured specific apps for mental health week events. App stores’ internal teams may promote specific apps with “Editor’s Choice” badges and editor summaries.

In general, it is important to bear in mind that commercial rating systems are user-driven rather than reflective of any expert or objective measures of effectiveness or usefulness. Further, summary ratings are specific to each territory on the App Store and can be reset when the app developer releases a new version of the app. However, resetting an app's summary rating does not reset the app's written reviews. Users can rate iOS, iPadOS, and macOS apps on the app's product page on their device, and they can rate watchOS apps on the app's product page on their iOS device.

Sustainability and Engagement Factors

As discussed above, there are many factors to consider when approaching app integration into a clinical workflow. Implementation factors will vary by clinic, but a comprehensive list of considerations can be found in a 2021 paper by the Veterans Affairs team as it sought to boost implementation (Armstrong et al, 2022). The integrated Promoting Action on Research Implementation in Health Services (i-PARIHS) framework is a commonly used tool to guide implementation projects. Its overall message is that health care research is a complex, nonlinear, unpredictable process that requires a flexible and responsive approach when incorporating new tasks or tools.

Other frameworks exist as well, such as the Replicating Effective Programs framework. Workflow implementation needs the full support of staff, and any process should begin with their full engagement. Specific workflow issues raised have included training, workload, time- or cost-efficiency, collaboration and coordination, tech skills and experience, roles and responsibilities, leadership support, infrastructure, process standardization and planning, staff competencies, data access and management, job security, incentives, and more.

A. Barriers and Challenges to Use and Adoption

The non-adoption, abandonment, scale-up, spread, and sustainability (NASSS) framework is a useful reference to help avoid common but frequent mistakes made in deploying technology into any health care setting. It covers seven domains including "the condition or illness, the technology, the value proposition, the adopter system (comprising professional staff, patient, and lay caregivers), the organization(s), the wider (institutional and societal) context, and the interaction and mutual adaptation between all these domains over time." Focusing on the condition, apps for mental health need to be usable for those who may have neurocognitive or physical disabilities. The value of the technology is often a barrier, as hidden costs or fees are a leading reason for ceasing app use among users. Organizations are still working to determine if apps offer value, and to date there is a dearth of high-quality economic analysis regarding apps. As noted earlier, digital literacy and other exclusionary factors are often not considered.

B. Implementation and Engagement

Key to engagement is working with the end user as an equal partner. In doing so, it is essential to select the appropriate participatory approach for the population of interest. While multiple, varying models of

participatory medicine exist (e.g., community-based participatory research, active community engagement continuum, rapid assessment and response evaluation, diffusion of innovations), commonly, researchers employ for disadvantaged groups participatory approaches that have been successful among non-disadvantaged populations. This leads to subsequent failure in accomplishing desired results, as these approaches do not take into consideration factors that affect disadvantaged groups such as phone speed, availability of data, or language. Equity-based approaches require greater stakeholder involvement with the decision-making and research activities at all stages of research—from observation, problem definition, hypothesis development and testing, and revision per results—to produce relevant results and wide scale uptake. Thus, collaborating with people from disadvantaged populations, utilizing the appropriate participatory framework, and demonstrating substantive engagement elevate our capacity to address health disparities.

Human factors in technology can facilitate engagement. One such type of human factor is peer support specialists. Peer support specialists are people with a mental health condition who are also trained and accredited to provide peer support services using technology. As digital peer support quickly expanded across the globe in the wake of the COVID-19 pandemic, standardization in the training and delivery of digital peer support has advanced the professionalism of this field. While telehealth competencies exist for other fields of mental health practice such as social work, psychiatry, and psychology, limited research has been done to develop and promote digital peer support competencies. Digital peer support specialist competencies include: 1) protecting the rights of service users, 2) technical knowledge and skill in the practice of digital peer support, 3) available technologies, 4) equity of access, 5) digital communication skills, 6) performance-based training, 7) self-care, 8) monitoring digital peer support and addressing digital crises, 9) peer support competencies, and 10) emerging health literacy.

There have been and remain many efforts to improve app engagement. Common strategies include gamification and social engagement, although neither has transformed engagement. A non-health example with the app Pokémon GO highlights the limits of gamification on long-term engagement. Social networks often require resource-intensive monitoring and moderation. Evolving research in chatbot and other AI-driven technologies represents a new frontier for engagement efforts with results still not back. A less technical but perhaps more important consideration around engagement is how the app is used in partnership between clinicians and patients. Using apps in a manner that boosts the therapeutic alliance is likely to lead to longer and more sustained engagement. Of course, different populations will seek different experiences. One review of apps for youth reported “videos, limited text, ability to personalize, ability to connect with others, and options to receive text message reminders” were the most important factors for the youth studied.

Appendix A: About the Authors and APA App Advisor

The American Psychiatric Association's App Advisor is an initiative begun in 2019 that builds on the organization's work in app evaluation that began in 2014. Its purpose is to develop guidance and resources around the use of mHealth in mental health care, targeting clinicians, patients, policymakers, and the general public. The group is comprised of an array of mental health clinicians, professionals with expertise in health information technology, and those with lived experience of mental illness.

This group was assembled through an open call for nominations and submissions issued to the general public in June 2019. Following a review and selection process undertaken by APA's Committee on Mental Health Information Technology, the group first convened in December 2019 in Washington, D.C., at the APA's headquarters. At this first meeting, the panel reviewed and revised APA's App Evaluation Model—a framework offering guidance on reviewing and selecting mental health apps in clinical care. Through consensus building, the panel revised this model to the iteration available on the APA's website today.

As a natural outgrowth to its work in app evaluation, the panel is now focused on developing guidance focused on the use of mHealth in mental health care.

Appendix B: Key Terms

A selection of key terms from this document and in the digital mental health environment include:

Applications (apps): Computer program or software application, primarily designed to run on mobile devices including smartphones or tablets.

Digital inclusion: Supporting people to achieve knowledge, confidence, and skills to engage with digital health services across a variety of media and platforms.

Digital literacy: Cognitive, technical, and physical access to and comfort with communications technology to find, use, and share information.

Digital therapeutics (DTx): An umbrella term that describes treatments or therapies that use technology to deliver behavioral treatments that support changes in patient behavior.

Mobile Health (mHealth): Patient-driven mobile health support and self-management tools.

Prescription digital therapeutics (PDT): Software-based therapies designed to evaluate or treat a medical condition and are prescribed by a provider.

Remote patient monitoring (RPM): Non-face-to-face monitoring of primarily physiologic factors to understand a patient's health status.

Telehealth: Care that is delivered using technology and without an in-person interaction, including through video chat, secure messaging and file exchange, internet-capable devices, or phone.

Virtual reality (VR): A computer-generated simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way.

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