Integrated Digital Mental Health Care: A Vision for Addressing Population Mental Health Needs

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Abstract: The unmet need for mental health care continues to rise across the world. This article synthesizes the evidence supporting the components of a hypothetical model of integrated digital mental health care to meet population-wide mental health needs. This proposed model integrates two approaches to broadening timely access to effective care: integrated, primary care-based mental health services and digital mental health tools. The model solves for several of the key challenges historically faced by digital health, through promoting digital literacy and access, the curation of evidence-based digital tools, integration into clinical practice, and electronic medical record integration. This model builds upon momentum toward the integration of mental health services within primary care and aligns with the principles of the Collaborative Care Model. Finally, the authors present the major next steps toward implementation of integrated digital mental health care at scale.

Keywords: digital health, psychiatry, integrated care, primary care

Introduction

The pressing demand for new solutions to address unmet mental health needs is undeniable. Equally apparent is the potential for technology to provide scalable solutions.[1] In the United States, the President's office designated digital approaches as one of its top three priorities for advancing mental health in 2023.[2] This article explores the current challenges faced to date and proposes a vision for enabling the full potential of digital mental health care, through the integration of digital mental health tools and services into the primary care setting.

Reflecting on the evolution of digital mental health reveals a discernible direction for the future. Mental health apps have been accessible on smartphones for over a decade,[3] and internet-based cognitive-behavioral therapy (CBT) programs have been available for 20 years.[4] Additionally, billions of dollars have been invested in venture-capital-backed digital mental health startups.[5] However, despite these advancements, mental health outcomes have not improved meaningfully for any age or demographic group.[6,7] While the COVID-19 pandemic contributed to worsening population mental health, the rise of telehealth also posed an opportunity for digital tools to have greater prominence in mental health care.[8]

Several barriers to the current generation of digital mental health approaches have limited their potential to make an impact on population-level mental health outcomes. Ongoing outrage at privacy violations,[9] lack of clear effectiveness data,[10] low user retention and engagement,[11] and minimal clinical integration[12] have limited the scale to which digital approaches can be disseminated among patients and clinicians. Furthermore, there have been inequities in the development and implementation of digital health tools,[13] and solutions have typically been oriented away from and inaccessible to individuals with serious mental illnesses and individuals living in poverty, who may be among the neediest.[14] Most digital approaches are not designed for people with lower levels of digital literacy and thus present a barrier to access for those without access to consistent high-speed internet connections and adequate hardware, such as smartphones or computers.[15]

Despite these current challenges, the potential of digital mental health tools to improve access to population-wide mental health remains. The aforementioned challenges to date can illuminate the path forward. First, any advances need to address inequities and ensure access to devices, the internet, and digital literacy. Second, new approaches need to guarantee privacy and communicate that clearly to the user. Third, any digital health technology deployed at scale should have demonstrated effectiveness and be embedded in a system where ongoing evaluation can facilitate further improvements to effectiveness. Fourth, focusing on engagement through not only advanced digital approaches but also coaching and human support is critical to ensure meaningful use. Fifth and finally, there must be a focus on clinical uptake, with training for clinicians combined with reimagined clinical workflows and payment models.

While the above changes may sound vast, they reflect other major health system priorities, including ensuring equity and building workforce capacity.[2] The US Centers for Medicare & Medicaid Services (CMS) announced a set of new remote therapeutic monitoring codes for 2023, distinct from remote physiological monitoring codes, including one targeted to mental health treatment and that could support new workflows and funding for staff.[16] Below is outlined a proposed vision for a model designed to implement these principles through integration in the primary care setting. The potential for digital tools in health care extends beyond mental health; while the scope of this article is limited to mental health, similar principles may apply to integrating digital tools in primary care generally. In addition, while the authors are based in the US and synthesize data largely from the US, the problems addressed and the model principles apply to other health care settings worldwide. This is the first instance of which the authors are aware of a fully integrated model of mental health care, digital tools and services, and primary care, although it builds upon prior work by others toward this vision.[17,18] The integration of digital tools into clinic-based mental health care, including in the primary care setting, has been described in both a US academic medical center and the Department of Veterans Affairs.[18] A collaboration between the Asia-Pacific Economic Cooperation Digital Hub for Mental Health and the World Organization of Family Doctors has laid out basic steps in expanding mental health services within primary care, including with the support of digital tools, across the Asia-Pacific region.[19] Broadly, the desire to incorporate digital approaches in addressing mental health needs in the primary care setting has been described across the world,[19–21] and international partnerships to develop strategies for both digital tool dissemination and standard setting may be beneficial in the current juncture of digital health evolution.[22] While the deployment of digital solutions alone will not address the full extent of mental illness in the primary care setting, these solutions represent a substantial opportunity to transform the delivery of mental health care and improve population-wide outcomes.

Integrated Digital Mental Health
Model Overview

Integrated digital mental health is a clinical model, anchored in primary care, that recognizes that (1) mental health is a population health priority and (2) with the right deployment, digital interventions can be uniquely accessible to patients, particularly given the current mental health provider landscape. The prevalence of mental health and substance use disorders has risen in the context of the COVID-19 pandemic and remains elevated as society recovers. Certain populations, such as adolescents, have been particularly severely affected in recent years.[6] This coincides with a wave of enormous provider burnout and mental health workforce shortages, making traditional mental health care services even more inaccessible.[23,24] Primary care settings have historically provided the majority of mental health care and are especially likely to serve as an entry point for individuals with incident conditions[25,26] and from racial and ethnic minority populations.[27] Needless to say, traditional mental health and psychiatric practices remain a critical part of the overall mental health system, and public health interventions promoting mental wellness and addressing risk factors for mental illness have a clear role in population mental health; the scope of these relative to primary care practices may vary depending on local, regional, and national resourcing for each. Digital interventions may have a large opportunity for impact particularly for spreading information and awareness. Nonetheless, many patients have long-term relationships with their primary care providers, with whom they would consider addressing mental health concerns and using new digital tools and programs. Furthermore, as consensus guidelines have increasingly encouraged the universal screening for mental health and substance use disorders,[28,29] primary care practices will continue to find themselves with a growing

number of patients with identified but unaddressed symptoms and diagnoses requiring clinical attention. The validation and dissemination of integrated models such as the Collaborative Care Model, discussed further below, reinforce the viability of delivering mental health care in the primary care setting.

Digital Navigation

Successful implementation of any digital solution requires an emphasis on people. Primary care practices and health systems already recognize the role of care coordination in promoting favorable health outcomes. An extension or variation of this role is the digital navigator, a member of the care team who supports digital equity, access, engagement, and selection of apps, websites, and other digital tools. A digital navigator training curriculum has already been published for dissemination and use.[30] This training consists of five key modules: (1) core smartphone skills, (2) basic technology troubleshooting, (3) app evaluation, (4) clinical terminology and data, and (5) engagement techniques. Relevant to integrated digital mental health, a digital navigator can offer support in two fundamental ways. First, they can serve as an initial guide in overcoming any gaps in digital connectivity, such as by determining eligibility for public benefits around digital access, and providing instruction in basic digital functions on a smartphone.[30] Studies of digital navigation have demonstrated substantial improvements in digital literacy and access, including functional outcomes; in one study of digital navigation for individuals with severe mental illnesses, nearly 75% of participants reported improvement in at least one smartphone skill.[31] Second, the navigator can help patients identify and use specific tools that may support their mental well-being; a crucial role of the digital navigator is the curation of secure, evidence-based tools that are a good fit for the population and practice setting.[17] For example, they can help clinicians and patients search through hundreds of mental health-related digital tools in databases like the Mobile-Health Index and Navigation Database (MIND) to match tools across 100 dimensions to the unique needs of each person;[32] as one area to highlight, privacy features are a dimension systematically reviewed by MIND. The United Kingdom's National Health Service has also taken on the "kitemarking" of recommended digital health apps, based on both efficacy and safety.[33] Regardless of the use of a specific database or set of tools, the navigator can provide essential patient education about digital security and make recommendations that take into account privacy considerations. The digital navigator can then help the patient engage with that tool and summarize progress for all parties at the next clinical visit. Note that the navigator may serve as a dedicated mental health digital navigator, but also either may be a general digital navigator (ie, also supporting the use of apps for, eg, diabetes management or hypertension management) or, alternatively, may be a general care coordinator or community health worker who supports other care coordination activities, depending on the practice's scale, other needs, and funding. The afore-mentioned digital navigator training is not specific to mental health, and may be applied to a new role on a team or an existing team member.[30]

Digital Integration into Mental Health Care

With greater recognition of the impact that primary care mental health integration has on patient outcomes, quality, and total cost of care,[34,35] there has been a rise of primary care-based mental health clinicians. Practices with integrated mental health clinicians can maximize the impact of digital mental health tools by integrating digital information and interventions into the course of clinical care. This allows for the practice of hybrid care, a combination of synchronous and asynchronous health care, which can enable increased access to care. Hybrid care can address the known challenge of low retention in digital health tools,[11,36] given that a digital navigator or clinician can promote engagement, guide the patient to relevant content, and, depending on the tool, use data from the patient's use in further guiding face-to-face care. In a large study of trained-clinician-led referrals to mental health apps, 40% of patients downloaded, enrolled, and used an app at least once, reflecting substantially higher engagement than has been demonstrated in other studies.[17] For practices without integrated mental health clinicians, digital navigators may serve in a "follow-up" role to promote engagement. The role of a clinician or other integrated staff member providing encouragement and reminders to engage with digital mental health tools has demonstrated substantial decreases in symptom scores for patients from primary care referred for treatment; in one study, a 40 to 50% reduction in depression and anxiety scales was seen over an 8-week period, with app engagement in more than half of the days in the study.[37]

Digital Integration into Electronic Medical Records

The ability to use digital tools to capture meaningful patient data, including both passive data and patient-reported outcome measures, and the ability to integrate this data into clinical care imply several opportunities for more effective clinical care.[38] In the nearer term, such data capture naturally facilitates the practice of measurement-based care, which has repeatedly demonstrated better outcomes than routine mental health care without consistent measurement; this may be as simple as obtaining a brief, single set of patient-reported outcome measures on a periodic basis.[39] In the longer term, the integration of much larger datasets into a robust analytic infrastructure, alongside medical data and other patient information, may guide the transition toward a learning health system, wherein continuous improvement in the digital data itself and ever-better decision support are facilitated.[40] In a 2022 study of approximately 150 college students, passive data alone poorly predicted patient-reported outcomes, but the combination of passive data with daily patient-reported outcomes enhanced the prediction of weekly patient-reported outcomes.[38] Along the way, the identification of relevant digital biomarkers can support more robust population health management, identifying patients for whom outreach and proactive engagement may be warranted.[41]

Team-Based Care

Synthesizing the elements of the model, integrated digital mental health represents collaboration between patient, primary care provider, digital navigator, and mental health clinician, along with digital tools that directly engage patients and collect clinical data for the care team, to support the primary care patient population.[18] While prior models of digital mental health clinics and digital mental health tools in primary care have been reported,[17,18] this vision represents a unique synthesis. This is a vision for population health management that is both integrated in regard to mental and physical health care and "technology-enabled." The model of care for an individual patient may vary depending on patient preference, mental health needs, digital navigation needs, and other practice factors.

Principles of Effective Integrated Care

In the integrated model described, several principles of effective mental health care naturally follow. The model is aligned with the principles of the Collaborative Care Model,[42] among the leading evidence-based models in all of mental health care. The five principles of the Collaborative Care Model are evidence-based care, measurement-based treatment to target, population health management, accountable care, and team-based care. The alignment with these principles is despite clear differences between the actual models of Collaborative Care and integrated digital mental health care. First, the intentional selection of evidence-based digital tools naturally leads to the integration of evidence-based practices into the course of the patient's treatment. In addition, the collection of structured patient data facilitates measurement-based care and establishes a foundation of population-wide data for population health management. The use of effective digital tools is aligned with the vision of accountable care, which moves away from reimbursement for face-to-face care volume. Lastly, the Collaborative Care principles provide a reminder that team-based care may be a necessary ingredient to mobilize the opportunity represented by digital navigation and integration of digital mental health tools into a primary care clinic workflow. This suggests that team collaboration and coordination should be essential to achieving improved outcomes. Of note, given that many co-located primary care-based mental health clinicians do not themselves practice in a truly collaborative or team-based model,[43] it is possible that establishing a digital navigator role as a partner to an existing primary care-based mental health clinician can serve as a catalyst to establish collaborative, team-based mental health care and enhance the effectiveness of the mental health clinician.

The Investment Needed

While the integrated digital mental health model may incorporate existing elements in primary care practices, several novel additions and investments stand out. From a staffing perspective, the digital navigator role, even if incorporated into an existing staff role, represents a new set of responsibilities not part of typical health care services or benefits today. Second, digital navigation is a novel skill set for most individuals, and content on both general digital literacy as well as mental health-specific digital navigation are necessary to disseminate the model, even on a small scale. Time for team

members to learn and become comfortable with the information and workflows is also needed. Third, the selection of specific digital tools and their workflow, clinical integration into practice, and technical integration into electronic medical records are critical to unlocking the elements of effective care delivery, such as measurement-based care and population-based care. In particular, electronic medical record platforms vary widely between health care systems, and medical record integration of digital data may not be a near-term possibility in some settings. Finally, while integrated mental health clinicians may exist in clinics today and obtain reimbursement for traditional patient care, primary care-based mental health clinicians are by no means universal and their implementation still faces numerous challenges.[44] Beyond financial challenges, interdisciplinary collaboration between primary care providers, mental health clinicians, and digital navigators is necessary for model success, and integration thus requires provider buy-in, culture change, and new ways of collaborating. Mental health integration may be an initial step before digital navigation can be incorporated. It is hard to imagine primary care practices having existing capacity or funding to invest into such a digital mental health model independently, today. Greater sustainability of primary care-based integrated mental health models, generally, will also support the implementation and sustainability of integrated digital mental health care. In the US, there is reason for some optimism, as the expansion of remote therapeutic monitoring Current Procedural Terminology (CPT) codes, in part a result of substantial provider advocacy,[45] has led to the inclusion of a specific CPT code for Cognitive Behavioral Therapy monitoring services.[16] Indeed, local, regional, and national coverage or provision of primary care-based mental health services, digital mental health tools and services, health care navigation services, and digital access broadly can affect the degree of investment needed.

Discussion

The ongoing global mental health crisis sets the stage for now as the optimal time for scaling an integrated digital mental health model. Studies of the elements of integrated digital mental health care have each demonstrated effectiveness, as reviewed above. The next phase in the evolution of this model is broader, larger-scale implementation at a local or regional level of a suite of evidence-based digital tools and trainings to enhance mental health care and engagement, in the primary care setting. However, as a step before this, greater dissemination of the individual components of the model described would help to prepare for implementation of a full suite of services. In particular, greater use of digital navigation—whether as dedicated digital navigation or as part of other existing care coordination support—would provide a key foundation for implementing the other components described. The adaptation of existing, ready-to-use tools and training programs[30,32] in consultation with local stakeholders can ensure a balance between both expedient implementation and local adaptation.

Collaboration with local stakeholders should center on three key objectives. First is to assess the digital and mental health needs and experiences of the local patient population. Second, a synthesis of the existing evidence base should draw from real-world population data. Third is to explore the strengths, weaknesses, and opportunities learned in the deployment of digital mental health interventions.

These combined efforts will culminate in a set of digital mental health resources and processes that are evidence based, which can serve as the foundation for future teams to build upon and scale further. In addition, greater digital integration in practices and increases in patients' digital literacy and access can open opportunities for the use of digital tools outside of mental health, such as in managing chronic medical conditions. It is clear from current epidemiological trends, technological trends, and trends in health care delivery that now is the time for population-wide digital solutions to mental health needs globally. Furthermore, the field is at a tipping point where the next order of scale—across an entire community or region—is the level at which digital mental health solutions need to demonstrate feasibility and effectiveness. The next chapter in the evolution of digital mental health solutions holds the promise of population health impact.

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