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Navigating the digital divide: providing services to people with serious mental illness in a community setting during COVID-19

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Abstract

Community mental healthcare around the world has been strained as people need more help and experience more barriers to access due to COVID-19. The rapid shift to telehealth services necessitated by the pandemic has made these difficulties even more pronounced. While this transition presented challenges for nearly every healthcare system, it has proven especially difficult for low resource settings such as community health centers. This article is a critical observational study of the care transformation of a state-funded safety net psychiatric system responding to the clinical needs of patients during the COVID-19 pandemic. By discussing the challenges, opportunities, and creative solutions for staff and patients, the article highlights the new importance of technology and adaptability in clinical care and outlines clear recommendations to ensure vulnerable populations do not fall into the "digital divide."

Keywords Serious mental illness · COVID-19 · Pandemic · Digital divide · Telehealth · Telepsychiatry

Introduction

The COVID-19 pandemic has upended daily life. Community mental healthcare around the world has been strained as people need more help and experience more barriers to access. The rapid shift to telehealth services necessitated by the pandemic has made these difficulties even more pronounced (Watts 2020). While this transition presented challenges for nearly every healthcare system, it has proven especially difficult for low resource settings such as community health centers (Sklar

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et al. 2021). It has made clear that access to technology and the widening digital literacy gap is an issue of health equity (Ramsetty and Adams 2020).

At Connecticut Mental Health Center (CMHC), a community mental health center located in New Haven, Connecticut, we have seen these challenges firsthand and have learned some lessons about and strategies for addressing barriers as we have converted our infrastructure to include a digital model of care. We hope these lessons may prove useful to other clinics working to provide ongoing high-quality care in low resource settings.

Pre-pandemic functioning of CMHC

In January 2020, Dr. JC walked into "Acute Services", the outpatient triage clinic. He sat down to the usual stack of blue paper charts with a pen and reviewed the treatment plans for the previous day's new patients. He then flipped to the front cover of a second stack of charts and wrote administration orders that would allow nursing staff to provide intramuscular injections of long-acting medications. Just then, a CMHC patient came into the clinic agitated and distressed. Dr. JC dispatched a resident to run up two flights to find this patient's paper chart in the office file cabinets. Another resident logged into the electronic medical record, the separate prescribing software, the separate laboratory website, and the local emergency room website to try to identify relevant context. Next, Dr. JC logged into the state secure email system and sent a message to the patient's outpatient team. He could only hope they would see his message as most CMHC staff did not have access to their email off site, or on any device other than their office desktop computer.

Providers and the medical record

CMHC is a state-funded mental health center that serves uninsured, undocumented, or Medicaid/Medicare insured patients with mental illness in South Central Connecticut. CMHC offers a variety of clinical services including inpatient and outpatient levels of care, a transitional residential unit, dedicated substance use and forensic services, groups, and a fully Spanish-speaking outpatient clinic. CMHC's patient demographics largely reflect the diversity found in New Haven: 55% of CMHC patients are Black or Latinx while New Haven is 33% Black, 30% Latinx, and 30% white. A quarter of New Haven residents live below the poverty line and the median household income is $41,000. CMHC is owned and run by the Connecticut Department of Mental Health and Addiction Services (DMHAS) and is staffed by a mixture of Yale psychiatry and psychology clinical faculty and trainees, and State-employed nurses, social workers, and administrative staff. All information technology infrastructure is chosen and funded by DMHAS.

Prior to the pandemic, CMHC's clinical services were delivered entirely in person. These services were supported by a patchwork of technological solutions, and a largely unchanged paper chart system. The Electronic Health Record (EHR) used by CMHC

was chosen by nonclinical administrators and has limited capabilities for documentation. It has no capabilities for provider-to-provider or provider-to-patient communication, or interface with prescribing or laboratory systems. Due to the limitations of the EHR, any document more complicated than a visit note—e.g., treatment plans, depression screens—was typed in a word processor, printed, signed, and filed in the paper chart.

Electronic prescribing, implemented in 2019, was (and is) sent through another third-party application, while refills were still predominantly handled via faxed requests from pharmacies. Lab work was ordered on paper forms handed to the lab tech, with results faxed back, sorted to physician mailboxes for review, signing, and filing in a paper chart, with results also available via the laboratories proprietary website. Community news was disseminated mostly through email and paper fliers posted throughout the building.

Despite these limitations, CMHC leadership understood that the aging and fragmented tech infrastructure could affect patient care, and that technology held promise in delivering mental health care. To better explore how CMHC patients use technology and approach better incorporating technology into care, CMHC launched a center for digital psychiatry in 2019. In December 2020, the Center for Digital Psychiatry launched a patient group called "Tea and Technology." The four-part group ran over the course of a month and was intended to teach patients how to use and navigate healthcare apps. However, it quickly became clear that most participants could not adequately use their device, let alone use an app. The group pivoted to simply teaching patients about the core functions of a phone, including how to turn the phone on, charge it, and use a mapping application to navigate to appointments. For the group leaders, these important insights into the level of digital literacy of CMHC's patient's forebode the myriad challenges that patients faced as care abruptly transitioned to telehealth just two months later.

Challenges to care under COVID-19

In April 2020, Dr. AJ found herself running clinic—patient visits, staff discussions, and resident supervision—from her kitchen. Every afternoon she opened a "Zoom Room" that the psychiatry residents logged into from their personal computers to ask questions and review cases. The rest of the staff on her team, however, were stuck with DMHAS desktop computers that had neither cameras nor microphones. Dr. AJ and the staff reached out to patients by phone to try to assess needs and reschedule visits, but even the ones who had cell phones often needed to protect their few remaining minutes for emergencies. So, calls were short, without time to get into detail and context.

With the onset of COVID-19, CMHC was forced to minimize the number of patients and providers physically on site. Nearly overnight, we went from seeing 100% of our clients in person to majority telehealth visits—either via telephone calls or, after some time, video-conferencing—each providing its own difficulties.

Patient-side challenges

A preliminary technology needs assessment done quickly after COVID measures found that the number of CMHC clients without reliable access to even basic telephone service was nearly three times the state average. Yet even this datum underrepresented the hurdles our clients faced communicating on the telephone with care providers. Even among those who did have telephone service, many had cell phones with pay-by-the-minute plans and could not afford to spend minutes on mental health appointments. As the Tea and Technology group had presaged, many lacked the most basic facility with their phones, unsure how to turn them on, charge them, dial or answer a call, set up or check their voicemail. Given widespread spam calling, some clients would not answer calls from unrecognized numbers, including from our clinic. Other clients reported turning off their phone when they did not need to make a call because they had been misinformed that leaving their phone on used up their "minutes".

Moving beyond basic telephone communication introduced its own challenges. Our under-resourced population often lacked access to video-capable smartphones or the internet. Many who did have smartphones, often received from government programs that predate COVID such as the FCC Universal Service Fund, were unsure of how to use the device and struggled with limited data plans. Although CMHC partnered with a non-profit to provide patients with tablets to facilitate video-conferencing for telehealth, few patients had access to Wi-Fi internet required to use them. Some internet providers opened up hotspots hosted by existing customers to the general public, but the impact of these programs was minimal as our patients tend to live in neighborhoods with few existing customers to share their signal.

System and provider-side challenges

Provider-side challenges, at both institutional and individual levels, also significantly impacted the rapid transition to digital care. As outlined above, in many ways the tech infrastructure at CMHC was already challenging prior to COVID. Additionally, there had been a long-standing culture of technological conservatism at DMHAS, ostensibly to safeguard protected health information. For example, existing IT policies prevented remote access to state email used in the clinical setting. State desktops used by every clinician were specifically purchased without webcams or microphones—a reasonable hobbling pre-COVID but a major hurdle now. While telephones were used extensively in clinical care, there was no platform for video telehealth. Yet, responses to rectifying these issues were hampered by a centralized bureaucracy making decisions for diverse and far-flung facilities across the state, leading to solutions that often ignore facility differences or even user feedback.

Further, the conservative approach to technology hindered the quick rollout of available options. Deliberation over officially approved options took weeks to months. Because of the dual position of CMHC physicians as Yale faculty working at a state clinical site, some technological solutions around telehealth were available

to Yale employees that were not available to the state employees working alongside. This led to an understandable confusion among state employees who were told that only state-sanctioned solutions could be used and were reluctant to participate in care with Yale-provided solutions. The frustration of clinical staff was compounded later when state mandated technology alternatives seemed to perform inferiorly, if at all.

The need to rapidly gear up telehealth solutions placed practitioners in uncomfortable positions. Service providers, who for years had been forbidden to even put a thumb drive into their work computer, now found themselves using their personal home computers to remotely access clinical materials and even conduct clinical telehealth interactions on their personal smartphones. Although many clinicians had to buy new devices capable of using software required for remote work, they were not reimbursed for the cost of their home internet access nor the expense of their home computer or smartphone. Clinicians were also informed that if they could not perform 90% of their work from home, they would be required to come onsite, with ramifications on COVID exposure and childcare.

Also, many clinicians themselves struggled with technology. Historically, the center's clinical workflow had not demanded much technologically from practitioners and the switch to remote, technology-dependent work exposed skill deficits among a good proportion of practitioners that were not previously appreciated. This presented challenges for these practitioners, and also meant that they could not confidently act as technological navigators for their clients.

Clinicians had years of experience navigating various government entitlement programs procuring telephones for clients. Nevertheless, many reported feeling overwhelmed when tasked with navigating the broader net of resources that opened following the pandemic (e.g., reduced cost telephone plans or home internet plans for those who qualified—while they were navigating technological issues for themselves as well.

Finally, the technology, even when working, can also be frustrating and distracting. More often clinicians are making do with phone calls—oftentimes to family, conservators, or visiting nurses when the client does not have reliable telephone access. Certain teams report that while they had the same number of documented interactions for the 6 months before versus after COVID, the duration of interactions halved. Anecdotal evidence supports this correlates with dissatisfying patient care on the provider side as they miss the intimacy of in-person engagement.

Successes with care

Dr. RM had coordinated several different weekly peer support programs prior to the pandemic. These groups offered a chance for patients to meet with others who may have had similar experiences and to receive and provide support and strategies. As patients and clinicians faced a growing number of weeks without regularly scheduled in-person individual or group therapy, Dr. M thought that the need for peer support was urgent. She and her peer staff members opened

peer support virtual meetings several times a week. They played music, vented about pandemic life, and shared challenges and strategies. Patients from several different CMHC outpatient services began to attend, including patients from the deaf and hard-of-hearing service together with the interpreter, something impossible with a phone-only option.

Community adaptations

As the pandemic wore on, staff rallied together to create new methods of connecting with patients within the confines of their technologically limited system. One significant achievement was the implementation of the peer support groups references in the vignette above. Although most clinical groups were canceled due to organization limitations in charting and creating encounters for phone or video-based groups, nonclinical groups such as peer support groups flourished.

Another group called the Better Eaters Club—run by a rehab counselor affectionately known as Chef Anne—also found its way online. The Better Eaters Club was a cooking group that helped patients learn about healthy eating and cooking skills acquisition. During the pandemic, Chef Anne and her team delivered food to each of the group participants beforehand. They then scheduled a time to videoconference together, learning about the food that was delivered and how to cook it healthily. The Better Eaters Club adapted beautifully to the pandemic. By delivering food to the patients, it helped reduce food insecurity and provided an interactive, physically distanced means for patients to socialize. The group offered CMHC tremendous pride in having figured out a workaround to the logistically and legislatively complicated situation of holding groups online.

The Yale Program for Recovery and Community Health, a research center within the CMHC system, was able to continue its support for a patient-run group, called Focus Act Connect Every-day (FACE). Many of the members of FACE receive services at CMHC. The group is focused broadly on mutual support and community-building rather than simply on mental illness (Quinn et al 2020). The group met biweekly before the pandemic at a local restaurant, and was able to transition to online meetings via Zoom with minimal disruption when the pandemic started. FACE members called and texted each other with meeting reminders, and shared meeting information in-person in the community, rather than relying on CMHC to mediate their connections to one another. The option to join by video or phone allowed FACE members to stay connected, even if computer literacy or availability was a challenge.

The group provided ongoing social support, a place to share COVID information, and a safe space to process news events including police killings across the country, the responses to them, and the emotional pain they invoked for many members. No patient health information is shared during meetings. The group shifted to weekly meetings soon after the pandemic started, to amplify the support members were providing for one another. Several members shared that FACE provided them support that was critical to maintaining their recovery through the stresses of the pandemic and frequent instances of police brutality. This was due, in large

part, to the well-established, trusting relationships members had with each other prior to the pandemic, which often extend beyond group meetings and into the community. FACE meetings also provided a predictable place to share information about resources (e.g., pop-up food pantries), which was shifting rapidly in the early months of the pandemic.

Along with connection to behavioral health and social support, reliable access to basic needs is an essential factor in maintaining mental health and well-being (Compton and Shim 2015). Many clinicians at CMHC were familiar with services and other relevant resources in the community that can address these needs prior to the pandemic, and regularly made referrals to organizations that provide them. The pandemic changed the hours of operation and frequency of many of those resources, thus updated and regularly communicated information became essential. CMHC pulled together an ad hoc group of staff members with expertise in different types of services, as well as connections to the people who run the organizations that provide them. The result was a weekly email to all clinical and support staff containing consistently updated information on the shifting resource landscape in the area, as well as a link to a relatively extensive Google spreadsheet that compiled resource information that was updated almost daily.

Remarkably, one set of CMHC clients successfully engaged via telehealth has been those living in supervised congregate housing run by non-profit organizations. Using program Wi-Fi and telehealth meetings facilitated by program staff, meetings are easy to schedule and hold. These encounters are satisfying per client and clinician report and continue even if programs go into strict lockdown because of COVID quarantining.

Discussion/Recommendations

As mental health professionals, we are committed to taking care of the most vulnerable and stigmatized patients within the community: those with mental illnesses and substance use disorders. But how do we provide excellent care to the most marginalized groups during a pandemic that amplifies vulnerabilities in the social determinants of health? (WHO 2020) How do we remotely help clients who often lack access to the necessary devices, internet access (Wi-Fi or cellular data), and technological literacy to interact with their providers?

How do we span the digital divide that disproportionately affects racial and ethnic minority communities, worsening the mental health of an already marginalized and historically excluded population simply by not knowing how to access or use technology? (Ramsetty and Adams 2020). These are some of the questions we asked ourselves as COVID-19 descended and we scrambled to respond (Gentile et al 2020).

Table 1 'Time for TEA': Actionable recommendations for tech transformation in safety net settings

Triage	• Establish and monitor meaningful metrics for engagement of your clinic's target population, accounting for potential sources of inequity (e.g., race, zip code). A Learning Health System approach can then support rapid cycles of innovation and provide data for advocacy (below)
	• Add 'digital' domain to Bio-Psycho-Social-Cultural assessment, formulation and treatment planning for all clients—this should not just include digital literacy, access to resources, but also the current and aspirational degrees a clients life revolves around technology (i.e., for their social and professional lives)
	• Develop strategies to prioritize allocation of non-digital (in person) resources dynamically and responsively to the right patient, in the right place at the right time. E.g., hybrid models of care
Educate	• Training resources for clinicians and clients in digital literacy and telehealth workflow
	• Expand clinical consent to treat processes to include a process of informed consent to communicate via a menu of available digital options (SMS, portal, email). Ensure you advise clients of the potential risks and benefits
	• Increase awareness of and access to low cost/free resources available to your population
	• Increase awareness of the latest evidence around the effectiveness of certain digital interventions—you may have to question assumptions and dispel myths amongst late adopters!
	• Promote groups that meet in a less formalized way, including those led by patients. These groups can be more resilient, and in many cases more responsive, when the system faces interruptions to services
Advocate	• Identify and be accountable around technology as a health equity issues for community mental health centers
	• Present clear requests to payers and administrators for essential digital resources, training, and regulatory change—include estimates of cost/efforts savings, improved clinical outcomes and/or reduced clinical risk. Cite relevant literature
	• Digital communication resources should be specifically written into the running costs of clinics
	• Lobby industry and local authorities for increased public hotspot access, as well as emergency health-based exemptions preventing internet/cell service interruption (as available with gas and electricity providers)
	• Help advocate on federal level for expansion of 'Meaningful Use' EHR incentives to support access to clients and interoperability with collaborating public healthcare systems or smaller practices

Immediate actionable recommendations

Based on these experiences, we offer some recommendations to similar clinics and providers (Table 1). *Triaging* is crucial to estimate the need for tech resources on a system and individual level and to guide action. Systems of care should establish and monitor meaningful metrics for engagement of their clinic's target population, accounting for potential sources of inequity (e.g., race or zip code). By adding the 'digital' domain to structured intake and periodic biopsychosocial assessments and treatment plans, clinics can identify digital strengths and needs at the front door and allocate resources to individual patients or groups as needed. These resources may span brief training interventions (deliverable by peer specialists) to distributing a supply of devices. It is likely we will require hybrid modes of providing mental health care, where some care occurs in person and much occurs virtually. Triaging may identify clients for whom digital engagement or telehealth is not appropriate,

in which case in-person services can be targeted. In assessing a client's digital life, consider not just digital literacy and access to resources, but also the degree to which a client's current and aspiring social and professional lives revolve around technology (Kopelovich et al., 2021).

The need for *Education* and training is constant in this evolving field. Both clients and clinicians can have considerable training needs around the use of widely adopted and seemingly ubiquitous technologies (such as smartphones and email). Identifying local technology 'superusers' or early adopters embedded within clinical teams can provide natural support to colleagues. Free online resources (such as You-Tube) may be just as useful for clients and providers alike. Clinicians should also receive up-to-date, formal, documented training in telehealth, digital psychiatry, and data security best practices.

The specific benefits and use cases of telehealth need to be discussed with both clinicians and clients so they understand the need for technological change. A menu of communications options may be embedded in the standard clinical consent to treat to be opted in or out of. There is a wealth of free or low-cost wellness and health monitoring apps available, and clients and clinicians should be kept informed of these. Exciting new developments in digital psychiatry should also be celebrated, sharing the latest research evidence alongside testimonial evidence of success stories. New technologies and news reports of data breaches can breed mistrust and resistance. There may be opportunities to dispel myth.

Advocacy will be crucial to ensure adequate resources and regulatory support to provide optimal digital care modalities. One of the first steps is to identify technology as a core health equity issue for community mental health centers (Crawford and Serhal 2020). Advocates should prepare and present clear requests to payers and administrators for essential digital resources, training, and regulatory change—include specific estimates of cost/efforts savings, improved clinical outcomes and/or reduced clinical risk (Malla and Joober 2020).

Digital communication resources should be specifically written into the running costs of clinics and not be an after-thought for which to be begged and borrowed. Health systems and providers can lobby industry via local authorities for increased public hotspot access, as well as emergency health-based exemptions preventing internet/cell service interruption (as is already available with gas and electricity providers) (Nouri et al 2020). Furthermore, advocacy on a federal level could result in expansion of EHR 'Meaningful Use' criteria incentivizing provision of not only patient portals but the basic resources necessary for underserved clients to gain access (e.g., inhouse self-help kiosks and terminals, inpatient as well as outpatient patient portals/hardware). Large, local systems of care should also be incentivized to share digital resources (such as EHRs or patient portals) with collaborating public healthcare systems or smaller practices which may be less resourced to solve these issues.

Finally, what is the role of mental health professionals in advocating for equitable access to eliminate this technological divide? We need to pen opinion editorials and testify to legislators about the importance of investing in crucial public health measures like universal Wi-Fi access and mobile phones. With the widening gap in access to technology, racial and ethnic minority populations will not have access to

the resources needed, beyond mental health care, to keep themselves safe. Additionally, professionals must keep their institutions accountable for addressing and mitigating the "digital divide" that affect our most marginalized and minoritized communities. It is within our role as mental health professionals to use our power and privilege to advocate on behalf of our patients to eliminate the digital divide.

Declarations

Conflict of interest The authors have no conflicts of interest to report.

References

Compton MT, Shim RS (2015) The social determinants of mental health. American Psychiatric Publishing, Arlington, VA

Crawford A, Serhal E (2020) Digital health equity and COVID-19: the innovation curve cannot reinforce the social gradient of health. J Med Internet Res 22(6):e19361. https://doi.org/10.2196/19361

Gentile A, BerardisD De, Tomasetti C, Ventriglio A (2020) Digital psychiatry in COVID-19 pandemic: an Italian perspective. Psychiatry Res 292:113316. https://doi.org/10.1016/j.psychres.2020.113316

Kopelovich SL, Monroe-DeVita M, Buck BE, Brenner C, Moser L, Jarskog LF, Chwastiak LA (2021) Community mental health care delivery during the COVID-19 pandemic: practical strategies for improving care for people with serious mental illness. Community Ment Health J. https://doi.org/10.1007/s10597-020-00662-z

Malla A, Joober R (2020) COVID-19 and the future with digital mental health: need for attention to complexities. Can J Psychiatry. https://doi.org/10.1177/0706743720957824

Nouri S, Khoong CE, Lyles RC, Karliner L (2020) Addressing equity in telemedicine for chronic disease management during the COVID-19 pandemic. NEJM Catalyst Innovations in Care Delivery Published online May 4, 2020

Quinn N, Bromage B, Rowe M (2020) Collective citizenship: from citizenship and mental health to citizenship and solidarity. Social Policy & Administration 54(3):361–374

Ramsetty A, Adams C (2020) Impact of the digital divide in the age of COVID-19. J Am Med Inform Assoc 27(7):1147–1148

Sklar M, Reeder K, Carandang K (2021) An observational study of the impact of COVID-19 and the rapid implementation of telehealth on community mental health center providers. Implement Sci Commun 2:29. https://doi.org/10.1186/s43058-021-00123-y

Watts G (2020) (2021) COVID-19 and the digital divide in the UK. The Lancet Digital Health 2(8):e395–e396

World Health Organization (2020) Social Determinants of Health. https://www.who.int/health-topics/social-determinants-of-health. Accessed 20 May 2021