

Forum: Supporting Mental Health*(Part 2 of 3)*

A Digital Literacy Program for Adults with Mental Health Conditions

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Limited literacy has a large impact on the U.S. population; about half of adults lack sufficient literacy proficiency (Rothwell, 2020). However, not all populations are impacted equally, as there is a significant comorbidity between low literacy and mental illness (Sentell & Shumway, 2003). Evidence suggests that patients suffering from a mental illness can experience reading difficulties in childhood (Maughan & Carroll, 2006), which in part contributes to the delays seen in adulthood. Low literacy not only makes educational attainment and completing daily tasks challenging but also is associated with poor health outcomes (including mental health) and is a recognized barrier to accessing health resources (Sentell & Shumway, 2003). It is imperative that adults with mental illnesses gain a sufficient literacy level to engage actively and independently with their health care system.

Navigating the health care system today requires not only advanced general literacy, but also a facility with digital technology. In part due to the COVID-19 pandemic, health systems' reliance on telehealth and other digital health technology has accelerated. For example, the rates of telehealth visits increased by 154% in 2020 in comparison to the same period in 2019 (Koonin et al., 2020). Telehealth and other digital health technologies, such as smartphone apps,

have the potential to increase access to care in scalable, cost-effective, and innovative ways. Due to this potential, internet connectivity and digital literacy have been named super social determinants of health as they both contribute to other social determinants of health (Sieck et al., 2021). For example, schedules and alerts for public transportation are now updated mostly online, and thus patients lacking the ability to check the internet might be delayed or miss their appointment. Despite the health care system's growing reliance on technology, digital health has not been the panacea once promised, especially for psychiatry. Recent evidence has shown that as few as 5% of people receiving mental health care via telehealth during the height of COVID-19 were first-time patients (Rosanwo, 2021) illustrating how simply offering telehealth services does not lead to increased access to care. Recent data show that patients suffering from more severe diseases such as a serious mental illness access telehealth less frequently (Rosanwo, 2021). In this light, calls for digital equity and inclusion have become more widespread (American Medical Association, 2022; Lyles et al., 2021).

These calls have centered around addressing two digital divides: access and literacy. First, to engage with technology, individuals must have access to a device and internet connection. This divide

continues to close as smartphone ownership in the United States is at near ubiquitous levels across the general population (Pew Research Center, 2021b) and more severely ill patients (Franco et al., 2022), and federal assistance programs such as the Federal Communications Commission Project Lifeline Program can assist eligible U.S. citizens in receiving a free smartphone and data plan (Federal Communications Commission, n.d.). The second digital divide, an individual's lack of skills, comfort, and knowledge with technology, continues to persist. In one sample, 46% of adults with serious mental illnesses lacked the digital skills necessary for daily life (Spanakis et al., 2022) with disparities also seen in older adults (Zoorob et al., 2022) and patients from lower socioeconomic background (Uscher-Pines et al., 2020). In response, impressive grassroots efforts have begun to teach digital literacy (Pichan et al., 2021; Triana et al., 2020). Yet, many of these programs are limited by their computer-based lessons, regional focus, and lack of standardized participant assessments. There is an unmet need for digital literacy programming that reflects modern technology, can be customized to meet a broad population's needs, and has standardized assessments that track participants' improvement and retention of digital skills across the duration of a program.

For any program, smartphones offer the most accessible option to teach core digital skills. Though learning how to use a computer can promote an individual's engagement with online resources, computer ownership in the United States is lower than smartphones especially among those from lower socioeconomic backgrounds (Pew Research Center 2021a). Thus, programs with solely computer-based instruction are more prone to exclude potentially interested participants. Moreover, smartphone instruction can target a wide range of functional skills for users with both

high and low baseline digital literacy, allowing any individual to partake in a program. For example, patients presenting low digital literacy can learn foundational skills such as learning how to take a picture or send a text message, while those more comfortable with technology can learn advanced skills such as navigating a patient portal. Yet, there is limited smartphone specific digital literacy training that is available today.

We have found that smartphones can offer mental health patients with low literacy numerous resources. We will highlight two examples below and describe how each can be beneficial to a patient's health. While these resources have great potential, we realize that not all patients are able to use their smartphones like this as they lack basic digital literacy.

Case Study 1: Taking Photos to Alleviate Negative Feelings

One patient reported that she uses her smartphones to take pictures. After she took a picture of something that she enjoyed, she would put each photo into a categorized album on her phone. Some of her categories included "puppies and kittens," "nature," and "people I love." She reported that depending on her mood, she would open different albums to help alleviate negative feelings. If for instance, she felt anxious, then she would open "nature" photos and said that she would feel much calmer after doing so. This case study illustrates that simple digital tasks, such as taking pictures and putting them into albums, have the potential to better a user's mental health.

Case Study 2: Listening to Music

Another patient reported that he likes to use his phone to listen to music. He stated he often uses Spotify to help him cope and that listening to

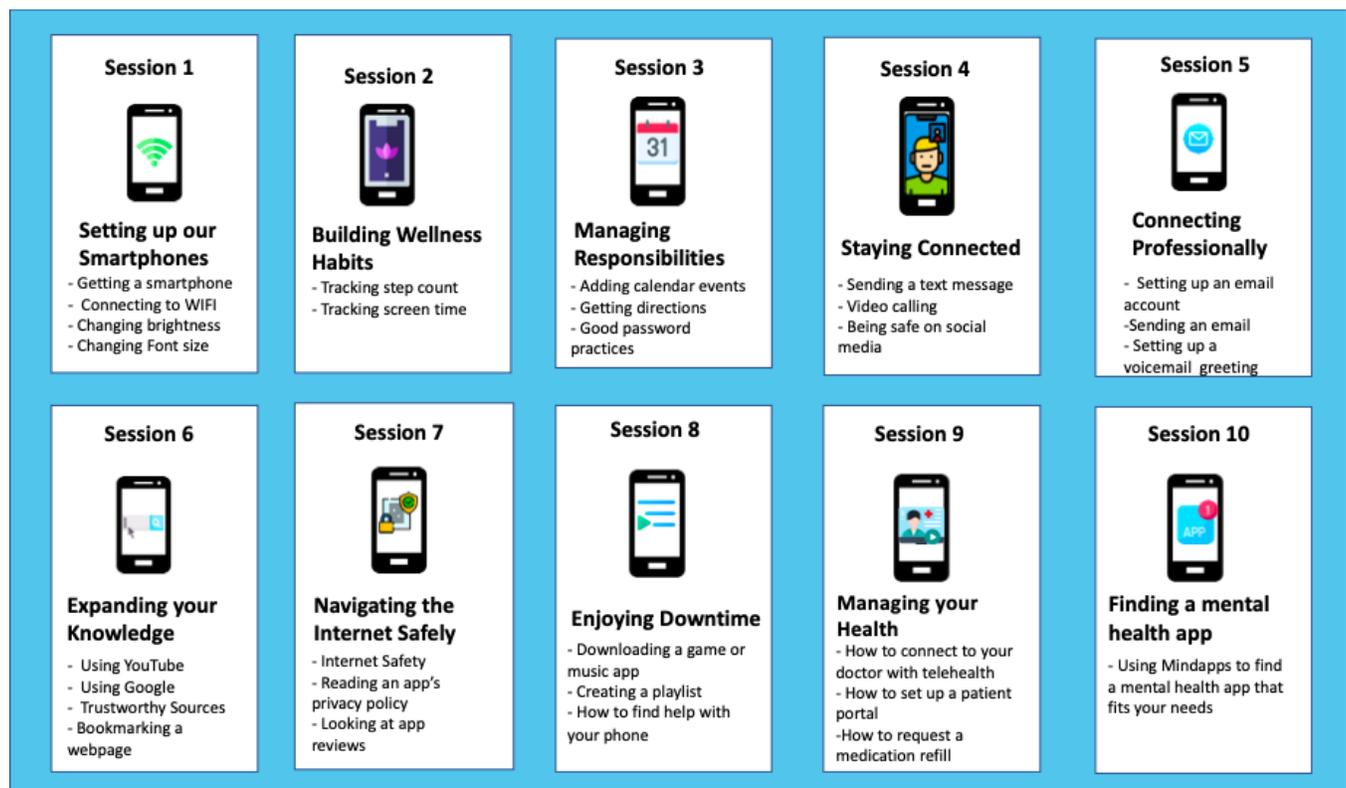
joyful songs helps lift his mood. Additionally, he also uses music to tune out the voices he hears in his head. If the voices are not tuned out of his head, he stated that he also takes audio recordings of his environment and relistsens to them to judge if the voices are in his head. In this case, the participant uses a variety of basic digital skills (i.e. listening to music and recording audio) to help him cope with his mental health condition.

Digital Opportunities for Obtaining Resources and Skills Program

To respond to this unmet need, our team has developed the Digital Opportunities for Obtaining Resources and Skills (DOORS) program and has been using this framework to conduct digital literacy trainings for youth and adults with serious mental illness and at high risk of low literacy over

the past 4 years. The DOORS program can benefit participants with low literacy levels by teaching the skills necessary to navigate technology. DOORS was developed through collaborations with participants, clinicians, and community partners in a first episode psychosis program and community center for adults with serious mental illnesses, and originally aimed to teach participants how to use their smartphones to meet their wellness goals (Hoffman et al., 2020). Iterative updates due to participant and community partner feedback have resulted in several curriculum changes and a shift towards functional skill building (Rodriguez-Villa et al., 2021). The current curriculum, shown in Figure 1, contains ten modules that teach participants a range of digital skills such as foundational smartphone skills (i.e., connecting to Wi-Fi) and advanced skills (i.e., choosing an app safely). Since each of our participants has a serious mental illness, the

FIGURE 1: DOORS Curriculum



DOORs curriculum also incorporates health-specific skills such as conducting a telehealth visit and enrolling in a patient portal.

The DOORs curriculum was founded and continues to uphold three tenets – self-determination theory, hands-on training, and dedicated time for one-on-one instruction – that could inform the direction of other similar programs. Taken together, these three elements work to ensure that DOORs participants have not only the understanding of why facility with a smartphone can improve their daily life, but also the ability to reproduce the presented digital skills independently. DOORs is currently held in in-person sessions that meet weekly for 1.5 hours on a voluntary basis, thus participants are freely able to come to any session and skip any session. To track improvement, participants' facility with the specific digital skills taught are assessed before and after each session. These surveys have shown that DOORs participants have reported improvements in 27 out of the 29 digital literacy skills assessed (Camacho & Torous, 2022). All DOORs materials can be requested and are free of charge. We urge any interested organization, community, or potential partner to use DOORs, customize the curriculum to align with their population's needs, or integrate other digital literacy programming.

Possible Impact of Digital Literacy Education

Programs that teach digital literacy, like DOORs, are important as they have the potential to impact many facets of their participants' daily life. Not only is digital inclusion considered a social determinant of health (Sieck et al., 2021), but engaging in many social, academic, and professional opportunities requires some comfort with technology. For example, those with low digital literacy are unable to call a friend, join a

social networking app, or participate in family video calls, thus limiting their social interactions to in-person meetings. For those suffering from a mental illness, low digital literacy hinders the self-management of their condition as they are unable to use their smartphone to improve their well-being. Smartphones have the potential to reduce anxiety through music, track physical exercise through monitoring step count, and build a digital hope box through the use of the native notes app or a third-party application. Yet, these functions are unavailable to those with low digital literacy.

To fully illustrate the impact of promoting mental health patients' digital literacy, four more case studies are described. These cases highlight how patients use their smartphones to promote their well-being. The first two cases describe participants presenting with low digital literacy, while the following two cases describe participants with more advanced digital skills. All case studies are based on our team's experience conducting the DOORs program with adults with serious mental illnesses.

Case Study 1: Using YouTube to Learn New Skills

After our session on how to learn new skills on the internet, one participant reported that he used his smartphone to go on YouTube. YouTube can be utilized to learn new skills and to watch videos for enjoyment. Learning new skills can enable a patient to gain a better sense of self-efficacy. The participant reported that he liked to look up a variety of skills on YouTube including how to meditate, do yoga, cook new recipes, and even new smartphone skills. In addition, he uses YouTube to look up videos to improve his mood. He reported that watching comedy videos made him laugh and feel better. This case study demonstrates that YouTube has the potential to be used in a plethora of ways to improve a user's mental health.

Case Study 2: Sending an Email to Connect with Others

In our fifth week of DOORs, we go over how to send an email. In the following week's session, one participant reported that he had sent emails to both his cousin and his music teacher. He reported that sending an email allowed him to connect with his family more and that it made him happy to be able to talk to his cousin. He also sent a video of himself playing the guitar to his music teacher, which he said made him feel proud to be able to share how much he had improved. The ability to send emails can allow users to connect with people on both a personal and professional level, which can in turn improve their mood.

Case Study 3: Learning How to Join a Zoom Call

During one of our last DOORs sessions, one participant asked if we would help him set up a Zoom account to attend an appointment. We helped him set up his account and reviewed several Zoom skills such as how to click on the meeting link once it was emailed to him, how to join a call, how to mute or unmute his microphone and how to share his screen. The following week, he reported that his Zoom call had gone well. This case highlights how some advanced digital skills, such as joining a Zoom call, require users to complete multiple steps and how each step was carefully explained to this participant. This case also highlights how digital skill training helped this participant engage with his health care system in a way he would previously be unable to.

Case Study 4: Downloading a Relevant Mental Health App

The seventh module of the DOORs program centers around how to find and download apps and how to read the privacy policy of an app. One participant in the beginning of the session stated that she wanted to download a meditation app. Towards the end of the session, our team checked in with the participant and asked her if she had chosen an app that aligns with her health goals. We discovered that as the session progressed, she had successfully searched for an app, read the app's description and privacy policy, and then downloaded the app. This case highlights how the hands-on instruction in DOORs allows participants to practice and complete different digital skills during class. In addition, this participant learned how to navigate the app marketplace and find a mental health app that aligned with her therapeutic goals more effectively.

Conclusion

DOORs has the potential to have far-reaching, meaningful impacts on participants' daily life for individuals with mental illness who are also at high risk of low literacy. Access to health care and other impacts of limited literacy can be mitigated through digital literacy instruction. As technology continues to proliferate, digital literacy education, like DOORs, will be central to mitigating the digital divide and ensuring all communities can actively participate in the digital era.

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