

Using Digital Technology in the Treatment of Schizophrenia

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From web-based applications to mobile devices, digital technologies hold tremendous potential to facilitate the delivery of healthcare for mental disorders, including schizophrenia. These eHealth (ie, electronic health) tools are increasingly being used to assist consumers during the course of their illnesses, from the provision of the continuity of care to improving well-being.¹ This makes sense due to the growing trends of digital tool usage in psychiatric samples. A survey of psychiatric patients ($N = 320$) recruited from different services across the United States found that the patients' interest in using digital technologies such as smartphones to monitor mental health was as high as 70.6%.² Of the 320 psychiatric patients surveyed, 80% had access to the internet, and 62.5% owned a smartphone.²

Indeed, digital technologies such as smartphone apps have been shown to be acceptable and feasible in individuals with psychosis.³ Clinicians can now consider how they can use particular digital tools to either augment or deliver treatments, eg, psychosocial interventions targeting motivation, or pharmacological interventions targeting medication adherence. Digital tools can be used either to provide an assessment, eg, capturing live mood states, or used within an intervention, eg, prompting the individual to activate adaptive coping strategies. Digital tools as interventions are not directly equivalent to being engaged with a therapist or clinician in real life. For example, clients may find it easier to report compliance to therapeutic home tasks set online by clinicians, coaches, or moderators, even if they had not completed them (eg, lower face-to-face accountability). On the other hand, digital platforms can provide a *safe* space (albeit temporarily) for individuals who are hesitant about engaging with their treatment team face-to-face.

Digital interventions delivered in those with psychosis come with several limitations. First, when digital tools are not designed or implemented properly, it is plausible that it may fail or be slow in identifying patient risk (eg, relapse). As such, in-person assessments conducted prior

to the commencement of a digital intervention can be beneficial. For example, useful information such as how the individual generally responds online or identifying their early warning signs can then be used to either tailor treatment and/or used to monitor their risk of relapse. Hence, digital tools should be developed to incorporate a safety protocol or algorithm designed to identify risk online (eg, sudden cessation of the tool, expression of distress within online forums may trigger a phone follow-up). Second, adherence rates to digital interventions have been found to vary from medium to low rates of adherence.⁴ Therefore, it is important to identify predictors of adherence to these digital tools in order to increase the benefits to consumers and service providers.⁴

Because people with psychosis often report loneliness, stigma, and discrimination,⁵ a digital intervention that can allow people to access evidence-based health information as well as also provide a safe online environment is highly valuable.⁶ This is especially crucial for young people with psychosis, who are particularly vulnerable to feeling socially isolated given their onset of psychosis occurs within crucial social developmental milestones.⁷

The study by Schlosser and colleagues⁸ illustrates both the promise and challenges of digital interventions for young people with psychosis. The authors found that individuals in PRIME reported improvements in components of the primary outcome, motivated behavior, and in the secondary outcomes of depression, defeatist beliefs, and self-efficacy as compared to wait list (WL) control. There were, however, no significant differences in positive or negative symptoms of psychosis, quality of life or functioning from baseline to post-trial or 3-month follow-up. There was also evidence that PRIME was acceptable and feasible to participants. Finally, all participants were recruited remotely, underscoring the potential reach of digital interventions, particularly for individuals who might not have access to Coordinated Specialty Care (CSC) programs for first-episode psychosis (FEP).

This study also draws attention to the challenges of implementing digital interventions. First, it is important to consider how newly developed digital interventions fit with other treatments; can they serve as a means of augmenting state-of-the-art treatment such as CSC or should they focus on individuals who do not have access to or have been discharged from CSC? If the latter, they would fill in a critical gap in our mental health system. Second, the use of remote assessments likely leads to different pathways to care than seen in CSC (ie, self-referral vs family members). Thus, do self-referred clients participating in digital interventions differ from those who are receiving treatment in CSC? This issue parallels the debates surrounding the validity and reliability of online recruitment via platforms such as Amazon Turk.⁹

Third, how would masters level clinicians bill for digital intervention service delivery, given that such interventions require active moderation? Relatedly, there was no mention of how these clinicians were trained in being PRIME coaches, nor whether fidelity to a treatment manual was assessed or ongoing supervision provided. This, of course, might be the difference between traditional face-to-face therapy and digital interventions, and the rules of treatment implementation may have changed. However, one would expect some degree of training and ongoing evaluation of treatment to be established; otherwise, there might not be any need for online coaches.

Fourth, engagement in PRIME (eg, number of logins, active use rate) was not related to changes in the study outcomes, suggesting that other variables or even non-specific factors (eg, being in a study; quality of relationship with the PRIME coach) may underlie treatment mechanisms. Finally, the primary study outcome was motivation on a Trust laboratory task, which is clearly innovative. However, enthusiasm for these findings are tempered by the lack of effects for PRIME on functional outcomes such as quality life or role functioning. It is possible that digital interventions will not be expected to improve functioning, and if this is the case, what will be their targets and niche, especially if some use it as a stand-alone intervention?

More research is still needed to determine whether digital interventions can target and effectively improve the functional outcomes of the individual with psychosis. We look forward to learning about the rapidly increasing number of interventions that utilize digital technology in schizophrenia and how they address the above issues.

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