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# Technology Interventions for Individuals With Mental Health Conditions

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People who experience mental health conditions make up one of the largest disability populations in the world. The National Institute of Mental Health (2019) reported that one in five Americans (or 46.6 million) in 2017 had experienced some level of mental illness. One study reported that the largest group of students with disabilities on campuses today are students who experience mental health conditions (Oswalt et al., 2018). Yet applying adaptive and everyday technology solutions to these populations is complicated by a dearth of research, practice guidelines, and models to guide clinical reasoning (Kirsh et al., 2019).



Occupational therapy practitioners who work with individuals who have serious mental health conditions are not accustomed to using technology solutions to address these clients'

occupational needs. Likewise, practitioners who specialize in applying technology solutions often do not have extensive experience working with individuals with several mental health conditions. This article attempts to bridge these gaps by referencing research, guidelines, and models to support effective clinical reasoning and solutions.

## Mental Illness and Cognition

Although psychotic and affective symptoms are typically associated with serious mental illness, research suggests that cognitive impairments also accompany, and perhaps underlie, these more commonly associated symptoms, thus further impairing occupational performance (D'Amico et al., 2018). Kahn and Keefe (2013) stated, "Schizophrenia is not primarily a psychotic disorder; it is a cognitive illness" (p. 1107).

In addition to the positive symptoms of schizophrenia, such as hallucinations and disorganized thoughts, and the negative symptoms, such as anhedonia and avolition, cognitive impairments (including problems with executive functioning, processing speed, memory, attention, and social cognition) may impair ADLs, IADLs, socialization, work, and other occupations (Kahn & Keefe, 2013). Considering these cognitive impairments often present in behavioral health conditions, potentially applying technology to compensate for them becomes more apparent as a potential intervention (Gillespie et al., 2012).

## Technology is Everywhere

Given the global access to everyday technology—cell phones in particular—developing apps and supports that use smartphone platforms are at the forefront of innovative development in the area of mental health treatment (Duplaga & Tubek, 2018; Wang et al., 2018). According to Statista (2018), more than 98% of U.S. citizens from the ages of 18 to 64 years use a cell phone, and this number is only expected to rise. Reliable organizations and websites, including the American Occupational Therapy Association (AOTA), offer extensive lists of such apps and other technology as solutions to address a multitude of deficits and occupational needs.

However, providing lists of apps as possible solutions can lead practitioners to "put the cart before the horse." Often, practitioners ask questions such as: "I have a client who has depression. What app should I use with them?" This solution-based reasoning approach, without first exploring the client's occupational profile, may lead to misappropriated solutions and technology abandonment, a common issue in which the client does not embrace and integrate technology into their routines, roles, and occupations.

## Start With the Person First—The Occupational Profile

As with any intervention planning, occupational therapy practitioners' reasoning should first be directed toward developing an occupational profile—a client-focused process of articulating the client's occupational history and experiences, patterns of daily living, interests, values, and needs (AOTA, 2014).

Before considering the client's functional limitations and underlying impairments, the occupational profile focuses practitioner and client attention on the client's desires to do or achieve, and the client's perceived barriers to their desired occupational performance. Especially with clients whose past experiences and present symptoms may negatively affect personal causation, practitioners and clients should explore and articulate the client's present needs as well as their desired outcomes.

### Case Example

This case example guides us through the process occupational therapy practitioners can use to match a person who has a mental health problem with a technology intervention that can help increase their participation in meaningful occupations. When occupational therapy practitioners work with clients they use a systematic approach to find the correct intervention to restore occupational performance with that client.

First, occupational therapy practitioners choose a conceptual model to guide their decisions; options include the Person-Environment-Occupation Model (Strong & Rebireo-Ghruhl, 2019) and the Canadian Model of Occupational Performance and Engagement (Townsend & Polatajko, 2007). The *Occupational Therapy Practice Framework: Domain and Process* (3<sup>rd</sup> ed.; AOTA, 2014) gives us a road map to follow when we start our evaluation and a format to follow using the occupational profile (AOTA, 2017).

N was a 49-year-old woman who came to our clinic with a diagnosis of anxiety. From our intake occupational profile, we learned that N assumed many roles, including bookkeeper; wife (married to her second husband, C); and full-time online student at a community college, where she was studying computer science. Within those roles, she was having a difficult time prioritizing, scheduling, and managing associated tasks.

N described her living situation as “very complicated”; she stayed most of the time on a farm with C. C also owned a trailer on her brother's property nearby, where she stopped daily in addition to going to work, doing schoolwork, and volunteering once a week at our clinic.

Because of her conflicting roles and lack of time, N missed playing the fiddle, which she identified as a coping strategy that helped her “calm down.” She described her life as “very out of control,” and it was her perceived lack of control that prompted her request for help with time management.

Once practitioners identify the barriers to occupational performance, they can see what evidence is available to support using everyday technology with those who are experiencing occupational performance deficits as a result of a mental health condition (Gentry, 2020). In this case, N’s barriers were lack of ability to manage time, anxiety about how to control her life, and lack of personal “me” time.

After the occupational profile was completed with N (see Table 1 below), we first constructed a time management strategy using a weekly calendar. We populated the calendar with “must do” items first and then filled in other events based on N’s determination of priority. As we discussed options to help with this time construction, N stated that she currently used the calendar in her phone; however, she often forgot to look at it.

**Table 1. N’s Occupational Profile Template**

Client Report		
<b>Reason the client is seeking service and concerns related to engagement in occupations</b>	N is a 49-year-old woman who came to our clinic with a diagnosis of anxiety.	
<b>Occupations in which the client is successful</b>	N is a bookkeeper who is married to her second husband, C, and she is also a full-time online student at a community college, studying computer science. Additionally, N’s mother lives in another state, and she has two grown children. She also has a brother who lives locally, and who she cares for in some capacity. She uses a smartphone to schedule and track her billing for work, and she is comfortable using a computer and uses it for her work and school.	
<b>Personal interests and values</b>	N enjoys learning and being productive. She also enjoys volunteering at a local free clinic. She plays the fiddle and enjoys playing with a local group. She is a very conscientious caregiver to all of her various family members.	
<b>Occupational history (e.g., life experiences)</b>	N has lived all around the country. She was married to her first husband, who was abusive, and she had two children with him—they are grown and doing well on their own. Presently she and C have had some financial challenges, and they are living on a friend’s farm, where they take care of the grounds and the cat.	
<b>Performance patterns (i.e., routines, roles, habits, and rituals)</b>	N states that she has no routines anymore. She feels drawn in too many directions and out of control, which causes her anxiety that exacerbates her feeling out of control.	
<b>Aspects of Client’s Environment or Contexts</b>	<b>Contextual Supports to Occupational Engagement</b>	<b>Contextual Barriers to Occupational Engagement</b>
Physical (e.g., buildings, furniture, pets)		N states that she is spread between two places—her trailer and the farm—making it difficult to be organized.
Social (e.g., spouse, friends, caregivers)		C is having difficulty getting around because of knee and back pain. N’s brother, who lives on the land with her trailer, has multiple sclerosis and abuses

		alcohol, but N believes that she has to take care of some of his needs. N has little time for friends—she knows some fellow musicians who she played music with but has not been able to do this lately.
Personal (e.g., age, gender, social economic status, education)	N is enrolled in an online college program to advance herself educationally.	N and C have been having financial difficulties, which have resulted in their living at the farm in exchange for rent.
Virtual (e.g., chat, email, remote monitoring)	N is enrolled in an online college program and can do a lot of her book-keeping work remotely.	N believes that she needs to be more efficient in handling her schoolwork. She states that she needs some strategies to help her with all the reading she has to do.
<b>Client's priorities and desired targeted outcomes</b>	N would like to gain control over her life again. She is being pulled in too many directions by her competing obligations and feels overwhelmed. She wants to learn how to manage her time and get some control back over her life.	

Recognizing that N essentially had an established routine of using existing technology contained in her smartphone, albeit with occasional forgetfulness, we determined it would be beneficial to maximize her existing habit and familiar technology rather than acquiring a new calendar app, which would require more extensive learning. According to Nemecek and colleagues (2015), linking new behaviors to already established habits can increase the likelihood of adoption. Essentially, we built on N's existing successful skills, habits, and routines around using her standard smartphone technology for use with the calendar function. We simply showed her how to add reminders and alarms to the already existing calendar app she was using.

Next, N identified that she was very stressed and wanted some strategies to relax that she could use during the day. She wanted to trial some relaxation apps that were available for her phone and we reviewed several with her. She picked the Calm App to trial free for a month and reported that it was helpful. Although there is an initial indication that relaxation apps can be effective for reducing stress in those with medical conditions, more evidence is needed to support their use (Mikolasek et al., 2018).

Lastly, we showed N some strategies to help her with schoolwork. We showed her how to use the "Find" option in online reading assignments to easily locate specific content. She was familiar with using the computer and commands, so this strategy was successful for her as well and helped her feel more efficient when doing her homework for school.

## Conclusion

By using the skills that N had with her phone and computer and building on them to establish routines, we were able to help her with time management and stress relief. Using her calendar, N was even able to structure in some time to play music again.

Matching a client with features of technology options and building on technology skills they already have can provide the basis for successful technology interventions as part of occupational therapy treatment with those experiencing mental health challenges.

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