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PERSPECTIVE

Therapy and E-therapy—Preparing Future Psychiatrists in the Era of Apps and Chatbots

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In both Canada and the USA, residency includes learning about psychotherapy. The Royal College of Physicians and Surgeons of Canada mentions several psychotherapies in its training objectives and states that residents must "demonstrate proficiency in assessing suitability for and prescribing and delivering" such treatments, including cognitive behavioral therapy [1]. The Accreditation Council for Graduate Medical Education (ACGME) in the USA sets out competency frameworks and assessments for psychotherapy in psychiatry postgraduate education [2]. Yet on neither side of the 49th parallel is there mention of e-therapies in training requirements.

E-therapies are psychotherapies delivered by websites or apps, either through the Internet or via cellular data. They can take different forms: as applications (computer programs, commonly called apps) for smartphones, as a novel part of more traditional outpatient clinical care embedded in a clinic's offerings (with the oversight of human therapists), or as chatbots, programs enhanced with artificial intelligence (AI) [3].

Apps serve different functions, including e-therapy, and are increasingly popular. Torous et al. found that many patients of a Boston-area private outpatient mental health clinic use apps; for those under 25 years of age, 80% had downloaded a mental health app [4]. E-therapy apps may offer users everything from thought logs that can be populated to comprehensive and interactive cognitive behavioral therapy (CBT).

In several countries, outpatient mental health services actively experiment with e-therapies, offering them as part of a menu of interventions [5]. So a person with panic disorder may see a psychiatrist for medications, but receive his CBT through a web-based program. Expansion of e-therapies has been included in government policy (for example, in Australia) [5].

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Chatbots—which we could classify as apps 2.0—are programs "that use machine learning and artificial intelligence methods to mimic human-like behaviors and provide a task-oriented framework with evolving dialogue able to participate in conversation" [6]; some include psychotherapeutic interventions (like cognitive behavioral therapy techniques) offered in real-time and may have a role to play in patient care—in a sense, therapy without the (human) therapist. Chatbots may offer certain advantages: unlike a human therapist, a chatbot is always available when the patient chooses to make contact, never distracted by thinking about what to barbeque for supper (or anything else), and "remembers" everything a patient told it through its data repository, using that information to develop a more data-informed understanding of the patient.

Our relentless tendency to anthropomorphize everything from pets to technology leads, in our experience, to a tendency to give chatbots a gender and a character—a twenty-first century form of transference that has long been recognized in the domain of traditional psychotherapy. Work in the area is supportive of this view, though we acknowledge that research in this area has just begun, and that for some patients, the concept of therapist-free therapy will likely be unworkable [7].

Though historically psychotherapy involved a therapist and her patient, the nature of psychotherapy itself is changing with technology—for better and worse. In this brief paper, we discuss the impact of new technologies, and its implications for the education of trainee psychiatrists.

E-therapy in Clinical Practice

E-therapy, like therapy itself, can be done differently in different circumstances. Just as cognitive behavioral therapy can take the form of an in-person therapy, it could also mean a person using a popular self-help book like *Mind over Mood*. (Indeed, countless self-help books are available built on a foundation of psychotherapies to supplement traditional face-to-face

intervention—or to substitute for it when it is unavailable.) E-therapies have a broad definition, and include internet-delivered CBT (iCBT), as well as other psychotherapies, like mindfulness and dialectical behavioral therapy, and may involve everything from simple online self-help resources to interactive, well-developed programs. In iCBT, arguably the most popular e-therapy, interventions may be guided by a therapist or not, and typically involve 6 to 15 modules [8].

E-therapies can be broadly classified by the degree of guidance offered by the clinician: *Low*: People are told about websites and/or apps, or find them on their own. *Medium*: People are given self-directed tools by their clinicians. *High*: Internet-delivered therapy or apps are incorporated into the traditional care, with follow-up and discussions.

Many studies have considered the use of e-therapies, with the most research for iCBT. Dozens of RCTs have been done for common mental health disorders; in a recent review, Andersson et al. summarized the literature: "moderate to large effects reported for panic disorder, social anxiety disorder, generalized anxiety disorder, posttraumatic stress disorder, and major depression" [9]. Apps are understudied, but evidence does exist for some [10]; these are early days for chatbots, though a recent study found positive user experience [6]. With so many challenges in terms of access to mental health services, the potential advantages of e-therapies are clear (see Table 1), allowing patients access to evidence-based care on their terms, unbound by geography and the usual scheduling constraints.

There are also significant challenges. *Uneven results*. Results are variable, and are strongly influenced by whether therapy is therapist-guided or not; without a therapist overseeing the therapy, the dropout rate can be high [8, 9]. *Uneven quality*. As an example, there are many apps but they are of heterogeneous quality; in a recent paper, Shen et al. found that, when a basic quality standard was applied to apps for depression (such as revealing the source of information), only one in four met that standard [11]. *Uneven compliance*. A downloaded app is not necessarily used: PTSD Coach, an app developed by the US Veterans Administration, has been downloaded more than 150,000 times—yet only 14% of individuals had used the app the day after downloading it [12].

Table 1 Potential benefits of incorporating e-therapies into psychiatric practice

1.	Greater access to care, especially given provider shortages
2.	Potentially good outcomes as e-therapies offer evidence-based care that can rival in-person therapy in certain circumstances
3.	More personalized care, as patient can tailor interventions to their needs and availability

Preparing Learners for E-therapies

E-therapies are increasingly available. And so we must recognize learning needs. There is a parallel with Telepsychiatry: we note that as technology has made this type of clinical encounter more accessible, education has changed accordingly [13]. Now, as patients look online for therapy, they may ask questions of clinicians. For learners who are looking to provide e-therapy, there are traditional educational needs (how to discuss a thought log, for instance), as well as new ones (e.g., how to engage patients better online).

Based on our experience and our conversations with researchers, teachers, and learners, we focus on five areas for education: knowledge of options, app selection, role as an e-therapist, role as a researcher (and a consumer of research), and ethical considerations.

Knowledge of Options

In our experience as teachers, our learners seem often unaware of now-well-established resources such as evidence-based self-help manuals, let alone those that require a computer or smartphone. The advice that a generation of learners has been given—read books like *Mind Over Mood*—remains relevant but needs to be updated. Learners should be advised to explore popular apps and websites, and grow familiar with the tools that our patients and their families are increasingly using. We emphasize the importance of that exploration; it's not enough to hear about a new app for insomnia; learners need to use and understand them. We would encourage residents to test-drive apps so that they have familiarity with the product, self-exploring and experimenting to understand usability and practicality, but also working with their patients and their families to understand the perspectives of those with mental disorders, possibly with role playing.

App Selection

As patients embrace e-therapies and include them in their care, an important role for clinicians would be helping select apps that are relevant. As already noted, apps can be highly variable in their quality—but patients may have challenges finding the right app at the right time. Patients could look to online rating systems, but they tend to have low correlation with clinical utility or usability [14]. As with other therapeutics, clinicians will turn to curated and filtered information from trustworthy sources to guide decision-making.

Clinicians will be increasingly part of the conversation that patients and their families have around app selection. We propose that learners be educated on the practical considerations of the selection. Clinicians, after all, can steer that conversation with some basic questions. *Is this app a good fit for the patient's needs?* Apps may make various claims, but clinicians

can tie claims (and evidence of meeting claims) to the best evidence in the literature. *Are there hidden fees or costs associated with the app?* Patients need to understand that while many apps are free, others charge upfront, or have hidden fees. *Is the app credible?* Apps that have the endorsements of universities and governments would be preferable to those without. And patients can be helped in their search for certain core features and/or certain types of therapeutic interventions. The recent creation of an APA app framework offers clinicians an "adaptable scaffold for informed decision making" [14] and can be incorporated into discussions with patients and their families, and is thus something learners should know and understand. And we see organizations like the APA providing more guidance in app selection over time—a role that learners will need to recognize and utilize.

Role as an E-therapist

Future psychiatrists will need to understand the unique challenges of e-therapy, especially since some will want to work as e-therapists. For example, trainees will need to understand how to engage patients when the traditional, face-to-face interactions are lacking. Email, text, telephone, and televideo communications will not just be about providing information, but about maintaining therapeutic rapport, problem solving, and encouraging patients to continue their therapy, to name a few tasks. We note that while defining a therapeutic encounter with a time and place may be impractical for some patients, those therapeutic boundaries serve a larger purpose (among other things, providing structure that makes vulnerability safe); e-therapies will need to recreate them. As well, therapeutic understanding of patients via non-verbal communication may be one of the casualties of this innovation.

Both in Canada and the USA, current training requires learners to actively do psychotherapy. As patients choose e-therapy, we would advocate that training programs require a certain number of hours of e-therapy, in addition to face-to-face therapy, modernizing training and mirroring the telepsychiatry requirements that currently exist in some resident programs, where didactic teaching is paired with clinical exposure (for example, at the University of Toronto [15]), not as a replacement for in-person consultations, but in addition to them.

Role as a Researcher (and a Consumer of Research)

Traditional methods of evaluation in psychiatric research may not be practical for these new technologies; unlike a drug whose patent persists to keep the drug unaltered for years, app updates can improve the product on a weekly basis. Similarly, our traditional measures of adherence may not match well with the fickle electronic world. With that in mind, education around research (and Quality Improvement) will need to change, ensuring that learners hold apps, as an example, to meaningful and realistic standards. As well, residents will need to learn about critically appraising the literature through the lens of technological advances—so, there is a need for learners to be encouraged and guided in their reading of review papers on the topic, perhaps through journal clubs (and e-journal clubs).

Ethical Considerations

For years, hospitals and clinics have prioritized the privacy of patient records, first as paper records, and now as electronic health records (EHRs). Likewise, digital privacy becomes more important as people use their smartphones to disclose personal information relevant in their therapies. Indeed, in the future, a patient's thought log on his smartphone, or emailed into his therapist, or the "conversation" that he has with a chatbot may have information that is just as rich in personal details as anything found in the EHR of his outpatient clinic. At present, some apps do not even offer privacy policies, while others share patient data; in a recent study, Huckvale et al. found that of 36 apps for smoking and depression, 29 sold data to third parties [16]. Over time, we speculate that other ethical issues will arise, such as when chatbots blend with other e-therapies (raising questions about disclosure and consent). Psychiatric residents will need to be aware of these ethical considerations, and aware that they will evolve with time, as technology continues to evolve.

From email to social media, technology has changed the way we interact with one another. Technology is now poised to change the way our patients receive therapy. Tomorrow's psychiatrists will need training that changes with these changing times.

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Compliance with Ethical Standards

Ethical Considerations N/A

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