



Beyond Googling: The Ethics of Using Patients' Electronic Footprints in Psychiatric Practice

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Abstract: Electronic communications are an increasingly important part of people's lives, and much information is accessible through such means. Anecdotal clinical reports indicate that mental health professionals are beginning to use information from their patients' electronic activities in treatment and that their data-gathering practices have gone far beyond simply searching for patients online. Both academic and private sector researchers are developing mental health applications to collect patient information for clinical purposes. Professional societies and commentators have provided minimal guidance, however, about best practices for obtaining or using information from electronic communications or other online activities. This article reviews the clinical and ethical issues regarding use of patients' electronic activities, primarily focusing on situations in which patients share information with clinicians voluntarily. We discuss the potential uses of mental health patients' electronic footprints for therapeutic purposes, and consider both the potential benefits and the drawbacks and risks. Whether clinicians decide to use such information in treating any particular patient—and if so, the nature and scope of its use—requires case-by-case analysis. But it is reasonable to assume that clinicians, depending on their circumstances and goals, will encounter circumstances in which patients' electronic activities will be relevant to, and useful in, treatment.

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A recently announced clinical trial promises to use a smartphone application to track the behavior of severely mentally ill young adults.¹ The application, developed by Valera Health and planned for use by McLean Hospital, will be installed on patients' phones, and researchers will be able to remotely analyze patient behavior and notify the patient's care team if they detect concerning findings. The use of Internet-based tools for mental health treatment has rocketed far beyond simply "Googling" one's patients, and there is an urgent need to carefully consider the clinical and ethical issues regarding the use of such information.

Psychiatry has always experienced a tension in the profession's view of the correspondence between a patient's self-report and external reality. Therapists regularly use collateral information (defined here as information from sources other than patients' self-report), and in that context increased professional attention has been given to certain aspects of information available on the Internet. The use of collateral information

from patients' electronic activities, however, has not been addressed systematically.

Collateral information can enhance psychotherapy by educating the therapist about the context of the patient's life and sometimes by disclosing discrepancies with patients' accounts. Collateral information was not always considered beneficial—Freud cautioned against its use²—but the importance of gathering information from collateral sources is now well recognized among mental health professionals.³ There may be discrepancies between patients' reports and reality, and collateral information is particularly useful for assessing problems that typically involve denial and incomplete reporting, such as substance use disorders.⁴

The nature of collateral information obtained need not relate only to untruthful statements. Persons in psychotherapy frequently withhold information from their therapists.⁵ Much of the information withheld is at the level of "impression management"; psychotherapy patients (and for that matter, all people) present an interpersonal facade to fit their goals.⁶ Information obtained from collateral informants can round out treaters' impressions, presenting a more complete picture of the person. As discussed below, it will be important to evaluate carefully whether the challenges posed by information obtained from patients' electronic footprints raise unique questions not encountered with older forms of collateral information.

Case reports indicate that clinicians are beginning to incorporate patients' electronic communications in their care. For example, one clinical team reviewed an outpatient's Facebook

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feed for months because of fears about self-harm and violence,⁷ and another team used a patient's Facebook postings to encourage insight into a dangerous suicide attempt.⁸ More broadly, ever increasing attention is being given to research and clinical applications for digital media, as discussed in several recent reviews.^{9–11}

In the face of growing use of such information, suggestions from professional societies, regulatory bodies, and commentators are limited; they generally provide guidance only about searching for patient information online, without considering collaborative and voluntary situations in which patients share information with clinicians. Aside from pointing to the need for at least minimal standards for avoiding harm, the available guidance does little to inform best practices. For example, the Federation of State Medical Boards simply suggests that physicians consider the intent of online searches and also the need to document online findings, and the American Medical Association restricts its guidance to medical professionalism and social media (i.e., managing one's online presence).¹² The ethics of searching for patients online has also received some attention. Commentators have emphasized the importance of evaluating one's aims and motivations,^{13,14} and, more broadly, have presented a framework of considerations relevant to Googling one's patients.¹⁵

Research on clinicians' attitudes and practices regarding electronic information in clinical practice is also limited, with surveys to date relating primarily to online searches. Results have been conflicting, indicating great variability and, likely, great confusion in clinicians' attitudes and practices. For example, in a study of psychiatrists and psychologists at one academic institution, 85% of respondents said they considered information obtained from electronic searches at least "somewhat accurate," and 75% percent considered online searches for patient information "ethical."¹⁶ Only 15% would have patients sign an informed consent document before they searched for patient information. By contrast, in a survey of psychology doctoral students in the United States and Canada, 67% percent of respondents said that it was "usually not" or "never" acceptable to search for information about a patient using Google, and 77% said that it was "usually not" or "never" acceptable to use social-networking websites to search for such information.¹⁷ The vast majority of those students had searched for patient information online, however, and reported that most of their patients were aware of the searches, indicating some form of patient notification, if not necessarily consent.

It bears noting that these surveys related primarily to Internet searches. When the discussion is broadened from Googling patients to potentially more complex and interactive ways of sharing information from patients' electronic activities, attitudes among clinicians are likely to be even more variable.

At the most straightforward level, "electronic communications" include email and text messages, and "social media" constitute a subset of electronic communications through which users create online content and share information.

However, there exists a broader scope of activities that could be reviewed as part of mental health treatment. Internet search behavior, website visits, geolocation data, and even biometric data such as sleep and physical activity (e.g., FitBit®) could be digitally logged and reviewed by third parties, including psychotherapists and psychiatrists. Indeed, primary care physicians already monitor metrics such as blood pressure and glucose, receiving personal data from their patients and sending out their own alerts and reminders, demonstrating the rapid development of electronic medicine. Recent commentators have called this totality of electronic and behavioral data patients' "digital phenotype."¹⁸ We use the phrases "digital phenotype" and "electronic activities" synonymously. See Text Box 1.

Text Box 1 Types of Electronic Activities

There are many electronic activities that are part of the "digital phenotype" and available for clinical review. The following is an illustrative list and not exhaustive; new methods for measuring online activities are being developed regularly.

- communications such as email and text messages
- metadata about communications, such as times and frequencies of communications
- broader use behavior (e.g., Internet browsing, search behavior)
- location data (e.g., through GPS tracking)
- physical mobility (e.g., through accelerometer tracking)
- proximity data (i.e., proximity to others, tracked through wireless connections)

POTENTIAL USES OF THE DIGITAL PHENOTYPE IN MENTAL HEALTH CARE

As noted above, some clinicians are beginning to incorporate electronic communications in their care. There is a broad range of potential motivations and methods for incorporating review of the digital phenotype into clinical practice.

Clinical Indications and Potential Benefits

Choices about whether and how to incorporate review of electronic activities will depend on the clinical rationale. The broadest approach would be to review such information as a matter of routine practice. That could be done to screen for dangerous symptoms, such as suicidal thinking or substance misuse, or simply to learn more about the patient as a person, including his or her interactions with other people. The specific therapeutic goals could range from risk reduction (e.g., suicide prevention) to subtler forms of therapeutic benefit (e.g., improving social function).

Specific clinical situations might motivate a clinician to review patients' digital phenotypes. As part of their "impression management," patients may underreport problems that involve guilt or shame. For example, electronic collateral information about substance use (e.g., posts about drinking and partying) or difficult relationships (e.g., the frequency and

content of communications) might reveal information that the patient might otherwise withhold. Some research indicates that this approach can be fruitful: online portrayals of drinking (for example, setting a Facebook profile picture that features alcohol consumption) strongly predict alcohol consumption and problematic alcohol-related behaviors.¹⁹

Other electronic activities might reveal symptoms associated with impaired insight, such as mania, psychosis, or suicidal thoughts. At the population level, a study of Twitter found a strong correlation between “at risk” tweets (i.e., those with potentially suicidal content) and U.S. state suicide data, strongly suggesting that online expressions of suicidal thoughts could provide useful information about risk.²⁰

Beyond postings and emails, review of other electronic activities might help monitor behavioral symptoms. For example, Social Rhythm Therapy directly addresses stressful life events and disruptions in social rhythms,²¹ and cognitive-behavioral therapy for insomnia adopts a structured approach to nighttime behaviors.²² “Metadata” (e.g., times of communications) might give helpful information about patterns of patients’ activities, without disclosing the content of their communications. One could even use data about patients’ locations—for example, for people with agoraphobia—to assess if they are leaving their houses in accordance with a course of behavioral therapy.

Finally, some problems and symptoms relate directly to Internet use—for example, online gambling,²³ pornography use,²⁴ and Internet gaming.²⁵ Patients who struggle with self-control of online behaviors might benefit from, and even welcome, an objective review of their activity.

Data about electronic activities could be reviewed directly with clients, or commercially available applications could be used to aggregate the data (e.g., programs used by parents to monitor children’s Internet activity). Such programs can track Internet use, log keystrokes, or even install software on mobile phones to track locations.²⁶ Developers across different settings are hard at work developing more complex tools.

Automated Review

Torous and colleagues²⁷ have recently reported development of a platform to collect smartphone data for psychiatric research. It collects a variety of raw-sensor and usage-pattern data; for example, it includes a GPS device (to track location), accelerometer (to measure physical mobility patterns), and wireless technologies (to track proximity to participating family and friends). The platform can collect metadata related to more traditional text and email communications, including information about social connections, patterns of communication, and message length.

Although their platform is oriented toward research, similar platforms could summarize information to aid clinicians in the review of electronic activities and communications. For example, if a clinician was interested in the frequency and times of communications or the general patterns of websites visited, software could produce a log that summarizes a

patient’s activity. Similar approaches could be used for summarizing the overall patterns of a patient’s movements. The downsides of such approaches for providers include the startup effort of implementing such programs and the possible negative patient perceptions about privacy. But it is worth noting that the applications limit information sharing to generalized data about an individual’s pattern of activities, which might alleviate some privacy concerns.

A series of studies provides proof-of-concept data about the potential for automated review of psychiatrically relevant electronic information. One describes a computer model to analyze suicide-related tweets: compared to human coders, the model was able to identify correctly 80% of the “strongly concerning” tweets.²⁸ A similar study used a computer model to predict depression based on Twitter activity, measuring tweets against a Web-based depression questionnaire; the model identified depression with an accuracy of 69%.²⁹ A third study examined Facebook posts in comparison to a clinical depression scale.³⁰ The researchers found that certain Facebook data, such as patterns of location tags, were correlated with depression. Clearly, automated computer models based on social media data show promise in identifying at least some people who are at risk for depression and suicidal ideation.

Although we are not aware of formal protocols for reviewing patients’ digital phenotypes in clinical practice, a recent study took the first steps toward that goal by linking social media, such as Twitter and Facebook, with electronic medical records.³¹ Over 5000 emergency room patients in Philadelphia were asked about their willingness to share their social media and electronic medical record data for research purposes. Of those, 2717 had social media accounts, and slightly over 1000 (37%) agreed to share their social media data, totaling 1,395,720 posts and tweets on Facebook and Twitter.

After installing a plug-in application in patients’ Facebook accounts that extracted content, the researchers merged social media with the electronic medical record data. The ensuing database allowed them to estimate that 7.5% of Facebook posts were contextually related to health. Although data were gathered for research purposes only, this study illustrates how a health system could incorporate and analyze information from social media. Of note, the information-sharing arrangement in this case was prospective and explicit. It also demonstrates that in clinical practice, a substantial proportion of patients could be receptive to a relatively significant integration of their social media activity with clinical records.

Automated review of electronic activities could even be used to predict future outcomes. A recent study from Microsoft Research used Twitter posts to quantify mood changes in postpartum women.³² Using data from Twitter behavior during pregnancy, such as linguistic style or number of followers, a predictive model classified mothers whose mood would change significantly following childbirth with an accuracy of 71%, which rose to 80%–83% when 2–3 weeks of postpartum data were added.

Finally, technology startups are beginning to partner with major hospitals to provide services along these lines. As noted above, McLean Hospital recently announced that it had partnered with technology startup Valera to conduct a clinical trial using a smartphone application with severely mentally ill patients aged 18 to 30.¹ This study is distinct from other consumer-facing smartphone applications—for example, those that help individuals track their moods or stick to wellness goals on their own—because the application will enable researchers to remotely analyze patient behavior based on smartphone data and notify the patient’s care team if changes thought to be related to clinical worsening are detected.

RISKS, CHALLENGES, AND OBJECTIONS

Gathering patient-specific information from electronic activities raises various concerns, as summarized in Text Box 2 and discussed below.

Text Box 2 Risks and Objections

- *Accuracy of information.* Online information is unregulated and should not be assumed to be accurate.
- *Effectiveness/impact on treatment.* Reviewing the digital phenotype of patients might improve treatment as intended, but it might also interfere with treatment goals or damage the clinician-patient relationship.
- *Efficiency: time and cost considerations.* Reviewing patients’ online activities might require excessive time and effort, or divert attention from more fruitful therapeutic interventions.
- *Privacy concerns.* By reviewing patients’ digital phenotypes, providers might create a new form of clinical information that could potentially be accessed by third parties. Privacy concerns also arise regarding third parties (e.g., family or friends of the patient) who regularly communicate with the patient.
- *Boundary issues and the therapeutic relationship.* Unethical clinicians might access digital phenotypes inappropriately. More subtly, online interactions might blur professional boundaries in the direction of “friendship.”

Accuracy of Information

Information on the Internet, especially in user-generated forums, is unregulated, and its accuracy cannot be assured.³³ People have many reasons to portray themselves inaccurately, including impression management, and clinicians reviewing such information could be misled. Some approaches might partially mitigate this problem, such as reviewing information with the patient in-session. Even in those scenarios, though, patients might still “spin” information, such as snippets of conversations or cherry-picked posts, to portray themselves in a good (or bad) light.

Effectiveness: Impact on Treatment

Considering the dearth of relevant research, the effect on treatment of incorporating these practices is an open question.

Some patients might see clinician access to their electronic activities as a means of developing a more intimate relationship with their treaters—for example, by conveying inappropriate information such as unnecessary details of their sexual behavior. Other patients, such as those with personality disorders, might not be able to tolerate clinicians’ increased access to information about their lives or might attempt to manipulate the new treatment frame in problematic ways—for example, by communicating distress on social media rather than to the clinician directly, or by developing unreasonable expectations about what the clinician “should” know about them. Treatment approaches that rely heavily on the clinician-patient relationship as a necessary element of effective treatment will have to manage this issue with caution. Again, these issues might be mitigated by reviewing information with the patient during sessions and by addressing, as part of the therapeutic process, unrealistic expectations or manipulative behavior. Prospectively setting expectations about the use of such information could also help.

Other issues relevant to the therapeutic relationship could affect the effectiveness of treatment. Many psychotherapists seek to promote patients’ agency and sense of autonomy. The expectation that clinicians will review online information might create a sense of dependency and undermine patients’ perceived responsibility for their own mental health. As online communication increasingly replaces in-person relationships, there may be value in preserving psychotherapy as a context in which to demonstrate the importance of face-to-face interactions.

How patients’ will perceive these practices is hard to predict. If a mental health clinician routinely reviews their electronic activities, some patients might perceive the clinician as distrusting them and view the relationship from a more adversarial perspective. Patients may also feel coerced—for example, they are not really interested in sharing electronic information but feel as though they cannot refuse when the clinician asks for it. All that said, patients’ reactions to the use of new information might inform the treatment process and should be the focus of future research.

Finally, would incorporating a review of social media into treatment grant unwarranted legitimacy to something with potentially adverse effects on mental health? A growing body of research suggests that social media involvement might have negative effects on mood.³⁴ If patients come to see their social media activity as an important part of therapy, they may feel encouraged to spend time on an activity that actually impedes their recovery. Whether incorporating patients’ digital phenotypes into treatment will increase their social media involvement is an empirical question that should be studied in any clinical research on these techniques.

Efficiency: Time and Cost Considerations

Time is a precious resource for all clinicians, and the cost and effort of incorporating new means of obtaining information must be balanced against the benefits. This problem would

be most acute for clinicians who choose to review patient information outside of sessions. But even for those who review information in sessions, time spent going over electronic activities is time diverted from other therapeutic interactions. This problem could be especially pronounced if a patient's electronic presence was extensive. Patients could also "act out" in therapy by multiplying their electronic messages so as to overwhelm their therapists and divert them from exploring sensitive issues. At the other end of the spectrum, some patients will not be sufficiently involved in social media or other forms of electronic activities to warrant clinicians' effort. Clinicians who are willing to move forward with these methods will need to determine whether such an approach is likely to be useful for each of their patients on an individual basis.

The time and effort involved with reviewing electronic activities might prompt the adoption of an "as-needed" approach, avoiding the extra effort in the absence of any clear indication for such review, such as deterioration in the patient's interpersonal relations or clinical status. This approach might help to reduce clinicians' workload but would have to be balanced against patients' potentially negative reactions if the practice of reviewing electronic activities is introduced at a time of crisis in their lives, and without having set clear expectations about such practices at the outset of treatment.

Privacy Concerns

By reviewing digital phenotypes, are clinicians creating a new form of clinical information that would not otherwise exist, and if so, what are the implications? This question is particularly relevant if clinicians document in patients' records what they find online. Such records are often released to insurers, including health, life, and disability insurers, and may also be released during legal proceedings. Although patients may have nominal control over whether records are released, in many cases they will have no meaningful option to refuse if they want to be reimbursed for their treatment, to have access to insurance, or to pursue a legal claim. Furthermore, information could be inappropriately released through a data breach or even through malicious activities such as hacking. Both clinicians and patients may be unaware of the potential implications of incorporating this information in the medical record, especially if the information goes beyond patients' self-reports in treatment or includes screenshots of electronic activities.

There are also potential ethical issues regarding the privacy of third parties. If patients grant clinicians access to their email or social media, they are providing access to other people's communications. Friends or family members emailing or sending private messages might have an expectation of privacy, even if, by the letter of the law, the communication is ultimately the patient's to share. If a patient repeatedly shares communications from one individual, the clinician may learn quite a bit about that person. Is there a point after which the clinician should become uncomfortable reviewing emails or other electronic communications that a third party obviously thinks are private, without that person's consent? With some

social media, mental health clinicians might gain access to third-party information that they otherwise would not acquire (e.g., clinicians who "friend" patients on Facebook can thereby gain access to parts of the patients' friends' accounts). Although patients have always had the option of bringing into psychotherapy sessions letters and other messages from third parties, the ease and ubiquity of electronic communications allows for much more comprehensive information sharing. This issue could be mitigated by restricting review to publicly available social media, excluding other communications such as emails, or to metadata.

Boundary Issues and the Therapeutic Relationship

Clinicians might look to monitor digital phenotypes out of a sense of curiosity, voyeurism, or even self-interest (e.g., a clinician might search for a patient's information to assess the patient's ability to pay). Some related evidence suggests such things are not necessarily rare; one survey found that some student-therapists searched for patient information without clinical justification, simply for curiosity.³⁵ Creating unregulated opportunities to learn more about a patient's personal information might increase the risk of boundary violations. This risk might be mitigated if clinicians obtain consent from, and disclose search results to, patients. That option relies, however, on clinicians to actively police themselves. Reviewing information alongside a patient might also help, though the patient would have only limited ability to control the information reviewed.

The effects on boundaries in the therapeutic relationship may be quite subtle. Gabbard and colleagues³⁶ cautioned that online "friendships" between clinicians and patients are problematic because they do not prioritize the patient's therapeutic interest and are associated with potentially inappropriate clinician self-disclosure. These considerations are relevant because on many social media platforms, in order to see the content of particular users, one has to connect, "friend," or otherwise link one's profile to theirs. Even if clinicians are careful to keep separate work and personal accounts—which they would be well advised to do—simply creating that new online link might affect patients' perceptions of the relationship. In some cases, as noted above, such effects on the therapeutic relationship might actually have negative repercussions for treatment, such as patient confusion about the nature of the relationship or manipulation of the therapist using this new route of communication. In keeping with broader discussions about "online professionalism" or "digital professionalism" in health care, the use of social media by mental health providers is not necessarily unprofessional or ethically problematic in and of itself, but if providers venture into social media in any form, they must remain diligent about protecting confidentiality, privacy, and respect for persons—in particular, by keeping clear boundaries between professional and social spheres.^{37,38}

Issues regarding boundaries in clinicians' other relationships may also arise. As clinicians learn about patients' extended

social networks, they may uncover indirect personal or professional connections to the patients—for example, that the clinician is also treating a relative or close friend (or adversary) of the patient. Although such complications are not new to mental health practice, especially in smaller communities, clinicians may, in monitoring patients' electronic presence, inadvertently acquire access to private communications of persons with whom they have other relationships.

Boundaries could be reinforced by the self-monitoring of ethical and well-motivated clinicians, or by the imposition of professional sanctions on clinicians who cross boundaries deliberately. Unfortunately, not all clinicians can be relied on to monitor themselves to prevent ethics violations, and in some cases professional organizations or regulatory bodies must step in. A Washington State physician was recently required to take a course in medical ethics after he was found to have searched for a patient on the Internet without clinical justification three days after performing a diagnostic procedure on her.³⁹ Professional regulation of misconduct regarding review of the digital phenotype could present unique challenges, as it might be difficult to detect instances of willful misuse. This area deserves ongoing research and attention as the field progresses.

Finally, the issue of sexually explicit material bears special consideration. While a detailed discussion of this topic is beyond the scope of this review, it bears mentioning that if mental health providers were to gain access to user-generated sexually explicit material (i.e., photos, videos, or explicit text), it could present extraordinary ethical challenges.

Does Use of Electronic Activities in Treatment Present Unique Challenges?

A key question is whether any of the concerns and challenges listed above differ from the issues that have traditionally arisen in the use of collateral information (as with traditional forms of collateral data such as letters). There are several important similarities, including concerns about accuracy or the effects on the therapeutic relationship. There are also important differences, however, between older forms of collateral information and these new electronic data. First, it can be far easier to access large volumes of electronic information. Second, electronic review can generate new types of information, such as automated methods that sort and highlight certain patterns of communication and behavior in ways not previously available. In particular, the possibility that automated review could predict future behavior or mood states opens an entirely new frontier of ethical considerations (though at present those concerns are largely speculative since the efficacy of such approaches is unproven). Similarly, information from social media may present a more vivid picture of the patient's personal life than older forms of collateral information—for example, an email or text message that presents the verbatim content of an argument, or pictures and video that document a wild night out. Third, patients themselves may perceive the potential “intrusiveness” of electronic

review differently than for traditional forms of collateral data, although these perceptions may vary: some patients might find review of electronic information more disturbing than the use of traditional collateral information, but others, particularly those more comfortable with technology, might have fewer concerns about, and even prefer, electronic review of their information. These differences between old and new forms of collateral information do not disqualify one or the other approach, but they highlight considerations relevant to the discussion below.

For a summary of the considerations relevant to the use of patients' digital phenotypes, see Text Box 3.

Text Box 3 Options and Variables

Clinicians who decide to incorporate data from patients' electronic communications into their clinical practices have several options and questions to consider:

- *Time course.* Should clinicians review electronic communications from the outset of treatment or only in response to specific concerns or issues? If review is initiated in response to a new concern (e.g., suicide risk), how long should the review continue? Clinicians might also consider a “digital biopsy”—for example, reviewing social media activity for a discrete time, thus avoiding the time-consuming, ongoing responsibility of unlimited review of a patient's electronic communications.
- *Population.* Should clinicians review electronic communications with all patients, or only some? If only a subset, which subpopulations of patients are most likely to benefit?
- *Methods.* Should clinicians review electronic communications in or out of sessions? Should tools or programs be used to sort, summarize, or analyze the information?

SPECIAL CONSIDERATIONS: REVIEWING INFORMATION OF CHILDREN AND ADOLESCENTS

Review of digital phenotypes of children and adolescents raises additional issues. According to the Pew Research Center, as of 2015, 89% of teens in the United States reported using at least one of seven leading social media sites, with 71% using more than one; 92% say they go online daily; and 24% report being online “almost constantly.”⁴⁰ Ample evidence indicates that younger people post sensitive information on the Internet.^{41–44}

In general, collateral information is essential to the treatment of minors.⁴⁵ Because minors are often extensively involved in technology, more clinically relevant information may be available in their digital phenotypes. Nevertheless, the decision whether to review their electronic activities must be considered with care. Many young people seem comfortable sharing personal information with a large number of people and thus might not object to their therapists also

having access. Even so, young patients who are developing a sense of autonomy and their own identity might have strong negative reactions to such reviews by an authority figure such as a therapist—which they could well perceive as intruding on their independence. Again, reviewing activities in-session might help to mitigate, but probably not eliminate, such concerns.

For minors, consent would ordinarily be obtained from parents (or entities acting in loco parentis), as in the case of treatment itself. The question is likely to arise, however, whether patients themselves should be told and their assent obtained. The risk/benefit calculus going into such decisions is complex, but given our commitment to consensual access, and based on the belief that engaging patients and obtaining their consent will reinforce the therapeutic relationship, we would encourage obtaining assent from minor patients. These situations become more complicated if parents or guardians, without the minor's knowledge, are employing software to track social media activity or even log keystrokes more comprehensively (for example, with *SpyAgent*, a program that can run in stealth mode and keep comprehensive logs for nearly every mouse click and keystroke on the monitored computer).⁴⁶ Parents may need help from clinicians in discussing the nature and purpose of such review with their children, especially if parents then report such information to clinicians.

Though the default assumption is that clinicians treating minors would obtain parental consent regarding the review (even if they were reviewing publicly available information), the situation could be more complicated, depending on the jurisdiction, if minors did not want to involve their parents; over 30 U.S. states have enacted laws that allow at least some minors to consent to mental health services, and nearly all states allow minors above a certain age to consent to drug and alcohol treatment.⁴⁷ Clinicians will have to be aware of the relevant state and federal laws, rules, and regulations. More broadly, this issue illustrates that the privacy of mental health care for minors is a highly sensitive topic; beyond fidelity to legal requirements, clinicians will have to carefully navigate the expectations and perceptions surrounding the issue. Further analysis of the multiple dimensions of child and adolescent mental health relative to this topic would be a useful focus for future work.

DISCUSSION

Several broad themes and questions emerge from this exploration of the potential uses of digital phenotypes. A central question concerns the main source of the push to use digital phenotypes in therapy. To be sure, patients' expectations have an important role in determining whether to use that information in therapy. Patients come into psychotherapy or other forms of mental health treatment with different ideas about the process, with some envisioning a more classic form of therapy and others eager to try new strategies. Indeed, some patients already appear to want electronic communications to be a part of their treatment; many bring in text messages,

emails, and other information to their clinicians' offices. It is conceivable that, in time, technology-focused patients will make even more specific requests of clinicians. Perhaps a patient with bipolar disorder will ask for some form of periodic review of social media to watch for emerging manic symptoms, or perhaps a particularly technophilic patient will simply see her emails and social media postings as an important window into her thoughts and feelings.

It is more likely, however, that mental health professionals and organizations will be the main drivers of change. In particular, as the McLean Hospital study cited above shows, larger organizations and hospitals might be best situated and most incentivized to integrate review of electronic activities into clinical practice. Payers may be highly motivated to encourage review of digital phenotypes if such approaches are shown to be efficacious in reducing relapse and hospitalization.

As time goes on, if review of digital phenotypes becomes a routine part of mental health treatment, the question may arise: is there ever an *obligation* to review a patient's social media or other electronic activities? Perhaps in more urgent situations, such as acute inpatient psychiatric units or emergency rooms, where patients are often not well known to clinicians, it will become commonplace or even the standard of care to review patients' online information. In other circumstances, such as in treating a patient who previously made concerning statements online, clinicians might not feel comfortable *unless* access to some sort of ongoing review was granted. The creation of a new clinical standard is not a deliberate act, however, but a process that arises over time as a result of changing practices. Access to electronic information is far from the standard of care today, but as practices continue to evolve, clinicians should remain alert as to their potential absorption into psychiatric and general medical care. Because this field in particular is poised for rapid development, psychiatrists in clinical and leadership positions alike must be vigilant for unintended consequences and unforeseen risks.

Any scenario in which clinicians review electronic activities will involve questions of cost and time, regardless of setting. From hospital systems and large practices (which would have to develop relevant policies and procedures) to individuals in private practice (who would have to implement such approaches on their own), the management considerations are considerable. Clinicians may wish to charge for time spent on such activities, but that might be feasible only in private practice, where clinicians could directly bill patients for the time involved. Larger health systems might be willing to invest in such efforts themselves, even if they were uncompensated, in the hope of improving long-term outcomes and avoiding negative events such as suicide. For the foreseeable future, it is likely that clinicians will not be able to bill third-party payers for such activities. In time, if better evidence on effectiveness is established, perhaps a policy-level argument could be made for reimbursement.

Of the factors relevant to psychotherapy outcomes, the strength of the therapeutic alliance is the most powerful in

predicting responses to therapy.⁴⁸ If clinicians choose to incorporate review of electronic activities into their practices, it would likely have strong effects—probably both positive and negative—on the therapeutic relationship. It will take serious effort and careful planning to manage the perceptions, expectations, and possible fears of patients regarding such review. If managed well, though, initiating those conversations might be an opportunity to strengthen the relationship and build trust.

CONCLUSIONS AND RECOMMENDATIONS

Decisions About Use by Clinicians

Fundamentally, whether clinicians choose to engage in review of digital phenotypes—and if they do, the nature and extent of their review—will depend on the treatment setting, goals of treatment, philosophy and orientation of the mental health professional, and resources available to support such review. Potential benefits must be weighed carefully against the risks discussed above, and that risk/benefit calculus will change dynamically based on multiple variables, including patient characteristics, method of review, and ultimate clinical aims. Even clinicians who are skeptical about reviewing patients' electronic activities need to consider the potential usefulness of this approach. In at least some cases, information from social media and other electronic activities might eventually become material to many patients' treatment; whether for risk reduction (e.g., suicide prevention) or other therapeutic goals (e.g., improving social function). For example, if higher-risk patients are known to have made suicidal threats online, clinicians might be sufficiently concerned to incorporate such review. Or, if a particular pattern of dysfunctional interactions with other people continues to surface with a patient, a clinician may come to believe that review of electronic communications such as emails and texts would be helpful. Thinking through—in advance—whether, when, and how they will explore their patients' lives online may be of enormous help when such occasions actually arise.

Providers who choose to initiate electronic review will need to make their own determinations about what types of electronic review will be worth the time and also about their level of comfort with the uncertain information that might arise from these rapidly developing information sources. They will also have to consider automated methods, either for summarizing generalized patterns of electronic behavior or for analyzing electronic activities and predicting future moods and behaviors. Although the methods noted above have not been measured against in-person, gold-standard clinical assessment, this type of analysis might still be a useful, first-pass screen to identify behaviors of concern.

If clinicians decide they are interested in reviewing patients' digital phenotypes, an important first step will be to assess the extent to which their patients are engaged in electronic activities. It is likely that clinicians are not routinely asking their patients about such online activities. *Recupero*⁴⁹ has published

suggestions for conducting a “mental status examination in the age of the internet,” and while her discussion is oriented toward forensic practice, it contains suggestions (e.g., possible interview questions about Internet use) that would also be useful to practicing clinicians. While a discussion of the forensic implications of the digital phenotype is outside the scope of the present article, others have also written about the use of the Internet and social media in forensic evaluations.⁵⁰

Consent Practices

If clinicians choose to embrace review of at least some patients' digital phenotypes, standard consent procedures should be developed. For example, in the case briefly mentioned above, a patient's Facebook feed was reviewed by his care team for months.⁷ When they saw that his profile picture showed him with a gun pressed against his head, they activated emergency services, and he was hospitalized. Perhaps unsurprisingly, the treatment relationship seemed to have been harmed by the nonconsensual nature of the monitoring.

Clinicians who routinely ask to review patients' online information may want to have information sheets describing and explaining the practice and asking for patients' consent. Even if a formal consent process might not be necessary from a legal perspective—for example, when the practice is restricted to publicly available information—doing so without patient agreement threatens the clinician-patient alliance. Consent practices should strive to represent the full spectrum of possible risks; for example, patients might not intuitively understand the possible risks regarding some of the privacy concerns discussed above. In more acute settings, such as emergency rooms or on admission to inpatient psychiatric hospitals, a discussion or consent process prior to a search for social media or other data might not be feasible. Even so, patients should be notified of the search as soon as such a notification would play a constructive role in the patient's course of treatment. If monitoring will be ongoing, consent should be obtained.

Institutional and Organizational Policies

Hospitals, clinics, and other organized systems of mental health treatment may not want to leave decisions about review of digital phenotypes to clinicians' discretion. They would be prudent to develop consistent institutional guidelines and policies. Professional organizations such as the American Psychiatric Association, American Psychological Association, National Association of Social Workers, and equivalent groups for other mental health disciplines should strongly consider developing guidelines or suggestions for incorporating such approaches.

Education and Training

Issues related to reviewing digital phenotypes should be part of clinical education and training. At present, the potential value and limitations of reviewing patients' electronic activities may not be apparent to the average clinician, and the practical issues may seem daunting. Prior to beginning review, clinicians should be aware of the range of possible information

sources and mechanisms for reviewing them. Then, they face challenging implementation issues, including time and cost, potential impact on the therapeutic relationship, and interpretation of uncertain and possibly inaccurate information. Instruction should begin early in the training of mental health professionals, especially since the available evidence suggests that many trainees are already searching online for specific information about their patients.^{16,17} Continuing professional education addressing these issues should also be developed, perhaps with the aid of professional societies.

Need for Research and Future Directions

Companies such as Microsoft are already beginning to develop technologies for predicting mood based solely on social media information.³² Mental health professionals and clinical researchers should take an active role in developing automated approaches for assessing mental health through electronic activities. As such technologies are developed and introduced into clinical practice, their actual clinical impact should be measured rigorously through efficacy and effectiveness trials. Although several possible clinical applications have been discussed in this article, it bears noting that data about the efficacy of these approaches are lacking and that future research must carefully investigate whether these approaches actually improve clinical outcomes.

At present, we do not understand enough about the perceptions of either patients or clinicians regarding the implementation of such technologies to anticipate the likely consequences. What do they understand about how electronic activities could be used in treatment? What concerns do they have? Are there misconceptions on the part of both clinicians and patients that hinder application to clinical work? Surveys and other assessments of patient and clinician perspectives should be considered. Clarifying the relevant perceptions will help to guide the development and implementation of best practices.

The explosion of online communication and other activities is one of the key developments of our time, and while people are sharing information more publicly and communicating more prodigiously than ever before, mental health treatment still primarily involves a clinician attempting to connect with a patient one-on-one. As these worlds collide, the mental health professions must be ready for major changes in the way we generate and use information to benefit that process.

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REFERENCES

- McLean Hospital. McLean Hospital and Valera Health use smartphones to engage patients with schizophrenia and bipolar disorder in clinical trial. 11 Apr 2016. <http://www.mcleanhospital.org/news/2016/04/11/mclean-hospital-and-valera-health-use-smartphones-engage-patients-schizophrenia-and>
- Freud S. An infantile neurosis and other works. In: Strachey A, ed. & trans. The standard edition of the complete psychological works of Sigmund Freud, vol. 17. London: Hogarth, 1953–74 [1917].
- American Psychiatric Association. Practice guideline for the psychiatric evaluation of adults. 2nd ed. Washington, DC: APA, 2006. http://psychiatryonline.org/pb/assets/raw/sitewide/practice_guidelines/guidelines/psychevaladults.pdf
- Carey KB, Simons J. Utility of collateral information in assessing substance use among psychiatric outpatients. *J Subst Abuse* 2000;11:139–47.
- Appelbaum PS, Kapen G, Walters B, Lidz C, Roth LH. Confidentiality: an empirical test of the utilitarian perspective. *Bull Am Acad Psychiatry Law* 1984;12:109–16.
- Sherman M, Trief P, Sprafkin R. Impression management in the psychiatric interview: quality, style, and individual differences. *J Consult Clin Psychol* 1975;43:867–71.
- Lehavot K, Ben-Zeev D, Neville RE. Ethical considerations and social media: a case of suicidal postings on facebook. *J Dual Diagn* 2012;8:341–6.
- Ahuja AK, Biesaga K, Sudak DM, Draper J, Womble A. Suicide on Facebook. *J Psychiatr Pract* 2014;20:141–6.
- Lafferty NT, Manca A. Perspectives on social media in and as research: a synthetic review. *Int Rev Psychiatry* 2015;27:85–96.
- Hsin H, Torous J, Roberts L. An adjuvant role for mobile health in psychiatry. *JAMA Psychiatry*. 2016;73:103–4.
- Torous J, Staples P, Onnela J-P. Realizing the potential of mobile mental health: new methods for new data in psychiatry. *Curr Psychiatry Rep* 2015;17:61.
- Baker MJ, George DR, Kauffman GL. Navigating the Google blind spot: an emerging need for professional guidelines to address patient-targeted Googling. *J Gen Intern Med* 2014;30:6–7.
- Clinton BK, Silverman BC, Brendel DH. Patient-targeted Googling: the ethics of searching online for patient information. *Harv Rev Psychiatry* 2010;18:103–12.
- Ashby GA, O'Brien A, Bowman D, Hooper C, Stevens T, Lousada E. Should psychiatrists “Google” their patients? *BJPsych Bull* 2015;39:278–83.
- Koh S, Cattell GM, Cochran DM, Krasner A, Langheim FJP, Sasso DA. Psychiatrists’ use of electronic communication and social media and a proposed framework for future guidelines. *J Psychiatr Pract* 2013;19:254–63.
- Deen SR, Withers A, Hellerstein DJ. Mental health practitioners’ use and attitudes regarding the Internet and social media. *J Psychiatr Pract* 2013;19:454–63.
- DiLillo D, Gale EB. To Google or not to Google: graduate students’ use of the Internet to access personal information about clients. *Train Educ Prof Psychol* 2011;5:160–6.
- Jain SH, Powers BW, Hawkins JB, Brownstein JS. The digital phenotype. *Nat Biotechnol* 2015;33:462–3.
- Ridout B, Campbell A, Ellis L. “Off your Face(book)”: alcohol in online social identity construction and its relation to problem drinking in university students. *Drug Alcohol Rev* 2012; 31:20–6.
- Jashinsky J, Burton SH, Hanson CL, et al. Tracking suicide risk factors through Twitter in the US. *Crisis* 2013;35:51–9.
- Frank E. Interpersonal and social rhythm therapy: a means of improving depression and preventing relapse in bipolar disorder. *J Clin Psychol* 2007;63:463–73.
- Edinger JD, Means MK. Cognitive-behavioral therapy for primary insomnia. *Clin Psychol Rev* 2005;25:539–58.

23. Clark L. Disordered gambling: the evolving concept of behavioral addiction. *Ann N Y Acad Sci* 2014;1327:46–61.
24. Manning JC. The impact of Internet pornography on marriage and the family: a review of the research. *Sex Addict Compulsivity* 2006;13:131–65.
25. Ng BD, Wiemer-Hastings P. Addiction to the Internet and online gaming. *Cyberpsychol Behav Soc Netw* 2005;8:110–3.
26. Barton J. Tech that can keep your kids safe online. *Huffington Post* 2015;15 Dec. http://www.huffingtonpost.co.uk/2015/12/15/tech-that-can-keep-your-kids-safe-online_n_8581760.html
27. Torous J, Kiang MV, Lorme J, Onnela J-P. New tools for new research in psychiatry: a scalable and customizable platform to empower data driven smartphone research. *JMIR Ment Health* 2016;3:e16.
28. O'Dea B, Wan S, Batterham PJ, Calear AL, Paris C, Christensen H. Detecting suicidality on Twitter. *Internet Interv* 2015;2:183–8.
29. Tsugawa S, Kikuchi Y, Kishino F, Nakajima K, Itoh Y, Ohsaki H. Recognizing depression from Twitter activity. In: Proceedings of the 33rd annual Association for Computing Machinery conference on human factors in computing systems. New York: Association for Computing Machinery, 2015:3187–96.
30. Park S, Lee SW, Kwak J, Cha M, Jeong B. Activities on Facebook reveal the depressive state of users. *J Med Internet Res* 2013;15:e217–20.
31. Padrez KA, Ungar L, Schwartz HA, et al. Linking social media and medical record data: a study of adults presenting to an academic, urban emergency department. *BMJ Qual Saf* October 2016;25:414–23.
32. De Choudhury M, Counts S, Horvitz E. Predicting postpartum changes in emotion and behavior via social media. In: Proceedings of the Special Interest Group Computer-Human Interaction conference on human factors in computing systems, Paris, 27 April 2013. New York: Association for Computing Machinery, 2013: 3267–76. At <http://www.sigchi.org/conferences/Conferences%20Archive/chi>
33. Bowker N, Tuffin K. Dicing with deception: people with disabilities' strategies for managing safety and identity online. *J Comput Mediat Commun* 2003;8(2).
34. Sagioglou C, Greitemeyer T. Facebook's emotional consequences: why Facebook causes a decrease in mood and why people still use it. *Comput Human Behav* 2014;35(C):359–63.
35. Lehavot K, Barnett JE, Powers D. Psychotherapy, professional relationships, and ethical considerations in the Myspace generation. *Prof Psychol Res Pr* 2010;41:160–6.
36. Gabbard GO, Kassaw KA, Perez-Garcia G. Professional boundaries in the era of the Internet. *Acad Psychiatry* 2013;35:168–74.
37. Farnan JM, Sulmasy LS, Worster BK, Chaudhry HJ, Rhyne JA, Arora VM. Online medical professionalism: patient and public relationships: policy statement from the American College of Physicians and the Federation of State Medical Boards. *Ann Intern Med* 2013;158:620–7.
38. Lannin DG, Scott NA. Social networking ethics: developing best practices for the new small world. *Prof Psychol Res Pr* 2013;44:135.
39. Washington State Medical Commission. Medical Quality Assurance Commission update! *Medical Commission Newsletter* 2014;Spring. [http://www.doh.wa.gov/Portals/1/Documents/3000/658-002\(March2014\).pdf](http://www.doh.wa.gov/Portals/1/Documents/3000/658-002(March2014).pdf)
40. Lenhart A. Teens, social media & technology overview 2015. <http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/>
41. Ybarra ML, Alexander C, Mitchell KJ. Depressive symptomatology, youth Internet use, and online interactions: a national survey. *J Adolesc Health* 2005;36:9–18.
42. Cash SJ, Thelwall M, Peck SN, Ferrell JZ, Bridge JA. Adolescent suicide statements on MySpace. *Cyberpsychol Behav Soc Netw* 2013;16:166–74.
43. Moreno MA, Parks MR, Zimmerman FJ, Brito TE, Christakis DA. Display of health risk behaviors on MySpace by adolescents: prevalence and associations. *Arch Pediatr Adolesc Med*. 2009;163:27–34.
44. Moreno MA, Parks M, Richardson LP. What are adolescents showing the world about their health risk behaviors on MySpace? *MedGenMed* 2007;9:9.
45. Kernberg PF, Ritvo R, Keable H; American Academy of Child Adolescent Psychiatry Committee on Quality Issues. Practice parameter for psychodynamic psychotherapy with children. *J Am Acad Child Adolesc Psychiatry* 2012;51:541–57.
46. SpyTech. <http://www.spytech-web.com/>
47. American Academy of Pediatrics. Confidentiality laws tip sheet. ND. https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/healthy-foster-care-america/Documents/Confidentiality_Laws.pdf
48. Orlinsky DE, Rønnestad MH, Willutski U. Fifty years of psychotherapy process-outcome research: continuity and change. In: Lambert MJ, ed. *Bergin and Garfield's handbook of psychotherapy and behavior change*. New York: Wiley, 2004.
49. Recupero PR. The mental status examination in the age of the Internet. *J Am Acad Psychiatry Law* 2010;38:15–26.
50. Pirelli G, Otto RK, Estoup A. Using Internet and social media data as collateral sources of information in forensic evaluations. *Prof Psychol Res Pr* 2016;47:12.