

DIGITAL DEVICES IN PSYCHIATRY

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JournalMTM 2:1:30-33, 2013

DOI:10.7309/jmtm.80

Introduction

The stereotype of the psychiatrist with a notepad sitting behind a patient on a couch is now quaint and largely historical with little relevance to contemporaneous practice (1). The digital revolution has brought about major changes in psychiatry. Psychiatric information used to sit in books and journals in physical libraries and is now largely available in electronic libraries or on the web. References with this article reflect that trend, which give rise to the concept of mobile technology enhancing the practice of the psychiatrist. Consent for the use of such devices and methodologies is implied.

The change began with use of word processors and then computers in the writing of reports and general correspondence. This progressed with the use of voice dictation in writing doctor's letters and reports. With a new generation of doctors being skilled at touch typing, some even record their patient notes as interviews proceed. The availability of assessment templates has meant that doctors following such templates may be more likely to complete an adequate assessment covering the relevant clinical areas than completing assessments with a blank piece of paper and no structure. Adaptive templates can allow brief notes in one area or an extensive elaboration in another, depending on the clinical presentation. Though this process began with mainframe and then desktop computers, it has now migrated to notebooks, ultrabooks, and tablets.

In major centres, provision was also made with special digital lines at high cost to project videoconferencing to specific locations, usually requiring dedicated equipment at each end. It meant that groups of doctors or other health professionals could be audiences at a particular location for a videoconference broadcast. There are obvious limitations in terms of availability and access when there are restricted numbers and locations for broadcasting and receiving sites. These specialist resources also provided some limited telepsychiatry

options for one-to-one consultations and may be funded by the relative health care providers/systems. There were substantial limitations as it meant that patients had to go to a dedicated centre, in rural areas often a considerable distance from own homes, there were limited times available for such broadcasts, and they were conducted at high cost. However the digital revolution has brought it nearer to home and with smart phones into their own homes.

Increasing bandwidth and speed across communities, enhanced download limits, together with the general access to home computing and webcams has dramatically altered options for education and clinical services. Educational videoconferencing with specialists can be broadcast by webinars to consultants in their consulting room or their own home, followed up with copies of slides or PDFs of slides, making access very easy, with very great time savings. Access to bandwidth, and the availability of cheap high resolution webcams and video screens means that clinical telepsychiatry is available from any consulting room, and potentially from any patient's home where they have computer, webcam, and the requisite bandwidth. It also means that patients who are attending for regular consultations in the psychiatrist's office, but who occasionally travel for business or other purposes, can maintain their regular appointments, even if interstate or overseas. Such popular programs as Skype can facilitate these processes. If linked with major institutions, it is important to be certain that such use is compliant with the facility processes, and that the videoconferencing service does not end up capturing large parts of the institution's computing facilities and bandwidth.

The mobile computer revolution has come about in two ways. Firstly for many, a tablet computer can provide immediate access in office or hospital ward to diagnostic information, therapeutic guidance, and detailed information on diseases, specific pharmaceuticals, psychological techniques and social interventions. There is also the capacity to

videoconference, undertake telepsychiatry, and many of the functions that were previously restricted to mainframe computers, or dedicated facilities. Hence the practitioner is able to be mobile yet in touch. Maintaining the doctor patient confidentiality remains in the province of the practitioner who needs to take all due precaution in both in terms of safe keeping information and due diligence when making communicating over the ether.

What commenced as the mobile phone has morphed into the personal digital assistant (PDA) and now the tablet. These devices are very portable and pocket sized, and can now contain a wealth of diagnostic, prescribing and general therapeutics information. They can also be of value with video calls, though it is important to see that there is compatibility between systems. It seems readily possible to videoconference between iPhones and other Apple devices, and between android devices and those using Google systems, but not between these broad systems. It is hoped that these partitions will disappear as cross platform processes become available for such video communication.

At a more mundane level, the synchronised smart phone, PDA or similar device, can carry appointments, be a communication device with SMS, email, and other services to the office, so that doctors are not constrained to the office and libraries for information which can now slip into a shirt pocket. The SMS can be used as a reminder for patients (18) of upcoming appointments or revised appointment times with the need to change or cancel an appointment. This is a further evolution as mobile communication devices have become ubiquitous in our communities. It may also help limit wastage of a resource with more efficient use of practitioner time.

From the humble notebook and pen, psychiatrists now have a range of technologies and particular mobile digital technologies to facilitate all phases of their clinical practices, education, office management, research, and to keep abreast of new developments. They are encouraged to utilise the resources to enhance their practices and increase their capacity to contribute to welfare of the community.

Much research is now conducted online, or with the use of electronic resources for data collection, management and reports.

How this plays out in practice depends not just on the doctor, but also on the patient. As patients have increased access to technology, not only can they have better communication with their doctor through SMS appointment management and reminders, but also in being able to go online to complete preliminary evaluations, monitor progress over time, and undertake home-based assessment and feedback. Patients also have access to all of the resources of the Internet, some of which are of great value and others of very doubtful value. Most doctors have by now had a patient come to them where the patient has already made a diagnosis and determined what therapy they think might be appropriate. They might even be armed with a tablet computer or a sheaf of papers on their own evaluation and its consequences including treatments they demand or those they have already deemed to be unacceptable. This evaluation may be on target, or quite different from the doctor's evaluation and can at times need extensive periods to undo misinformation rather than simply informing the patient and getting on with treatment.

Doctors need to be aware of these changes in technology and the general availability in the community of multiple suitable mobile, available devices and electronic and on-line resources.

There are ways in which patients and doctors can assess the quality of health resources on the Internet with such sites as the Health on the Net organisation(2). Accreditation by this organisation indicates quality medical information. It is a not-for-profit organisation under the auspices of the Geneva Ministry of Health and is based in Geneva. Information about illnesses, pharmacological psychological and social treatments are available through websites from hospitals(3) and organisations(4, 5). Cognitive behaviour therapy, understanding and skills can be followed and developed from a free self-help programs (6, 7). In fact with a selective review of the literature they found that mild to moderate mood disorders could as effectively or better managed with internet based CBT while this was not so when the problem was more severe.(8) The other aspect is the possibility for patients to follow the progress of illnesses and response by self-reports (9). There is a smart phone application (app) as well. In another carefully conducted review of review of literature on patients with chronic physical illnesses, monitoring the progress found that education, self-monitoring, feedback/tailored information, self-management training, personal exercise program, and communication (with either health care providers or fellow patients) were elements that were consistently

helpful in chronic conditions (10). Another recent study on CBT for selected eating disordered patients found that internet based therapy was comparable to accepted standard practice.(11) Overall therapy delivered over the Internet when applied in under suitable circumstances is as effective as conventional management.

Medical treatment decision supports are available through online access to medical journals. Many of these are only available by direct subscription, or if linked through an accredited library or professional organisation. In addition, there are organisations providing therapeutic advice in context as the result of considerations by expert panels (12, 13). Some professional organisations also provide data from presentations, meetings and scientific and clinical experts on their websites, though these may only be accessible by members who have paid subscriptions to these organisations such as the International Society for Bipolar Disorders (14) and the Australasian Society for Bipolar and Depressive Disorders (15). More specific prescribing advice is available with product information on pharmaceuticals from number of sources (16, 17), Epocrates (18) and Medscape (19) are both free applications with a wealth of information including drug references and interaction.

Overall, the use of digital devices in psychiatry have enabled major transformations that affect medical practitioners and their patients, encompassing evaluation, therapeutics, clinical outcome evaluation, and research. This is a dramatic change from the notepad and face-to-face interventions as perhaps the sole method of interaction. It is hoped it will lead to improved diagnosis, therapeutics and clinical outcomes, without losing the human touch.

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