

EBMH Notebook

The internet and mental health practice

The internet is one of the fastest growing technologies in the world. The number of web users worldwide is estimated at 513 million,¹ with approximately 100 million adult users in the United States² and 25 million in the United Kingdom.³ There is evidence that seeking health information is one of the most common reasons for using the internet.⁴ About 100,000 websites dedicated to health information have been identified.⁵

As in other areas of medicine and clinical practice, the internet and its associated technologies have begun to change the nature of mental health practice. Moreover, because the internet facilitates access to information and resources by patients and clinicians, there is an increasingly "mental health literate" community who may seek certain types of web-based mental health interventions. Self help is of increasing importance in Western countries. For instance, about 4% of the American population may undertake self help for medical conditions in any 12 month period.⁶ The internet provides fee and non-fee-based profes-

sional therapy, counselling and self help packages directly to the community.

In this EBMH Notebook, we update a previous paper on the expanding role of the internet in mental health practice.⁷ We consider the internet from the perspective of the mental health specialist, examining its impact in two domains: (a) information resources and (b) treatment provision. We discuss the scope of information and treatment resources for the practitioner and provide examples of resources. We also discuss the advantages and major obstacles to using these technologies. Finally, we speculate about the ways in which the internet will continue to change clinical practice and likely future trends.

Information resources

RESOURCES AVAILABLE FOR PRACTITIONERS

There are a number of well known sites which provide starting points to find mental health resources on the internet (see

Table 1: Names and URLs of popular mental health sites

Site	URL
Mental health portals for professional resources	
National Institute of Mental Health (US): Section for practitioners	http://www.nimh.nih.gov/practitioners/index.cfm
Mental Health Net (professional resources index)	http://www.mentalhealth.com/
Dr Grohol's Psych Central	http://psychcentral.com/resources/
ISMHO. International Society for Mental Health Online	http://www.ismho.org
The American Psychiatric Association	http://www.psych.org
The American Psychological Association	http://www.apa.org
Centre for Addiction and Mental Health's Resources	http://www.camh.net/resources/index.html
Online journals & databases	
Pubmed Central	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi
Journal of Online Behaviour	http://www.behavior.net/JOB/
Journal of Medical Internet Research	http://www.jmir.org
PsychLinx.com	http://www.psychlinx.com/
Reference guide to medications	
The Merck Manual	http://www.merck.com/pubs/mmanual/
Patient information	
National Institute of Mental Health	http://www.nimh.nih.gov
The Association for Advancement of Behavior Therapy	http://www.aabt.org
American Psychological Society	http://www.apa.org
The Anxiety Panic Internet Resource (tapir)	http://www.algy.com/anxiety/
Evidence-based information with a consumer focus	
BluePages	http://bluepages.anu.edu.au
InfraPsych	http://infrapsych.com
Clinical practice guidelines	
Centre for Evidence-Based Mental Health	http://cebmh.warne.ox.ac.uk/cebmh/
Cochrane Collection	http://www.cochrane.org/
Assessment tools	
Brain technologies	http://www.braintechnologies.com/index.htm
Georgia Mental Health Network	http://www.mcg.edu/Resources/MH/selftest.html
Internet forums including e-mail discussion groups and web-based discussion groups	
Behavior Online	http://www.behavior.net/forumfront.html
American Association of Pastoral Counsellors	http://www.aapc.org/

table). Professional resources include immediate access to information about clinical management, medication use and research through the online publishing of clinical journals, books, news articles, clinical practice guidelines, and government regulations. The internet supports sophisticated search engines which locate information readily, and allow searches of research databases (such as *PubMed*).⁸ Professional information is disseminated by online forums, newsgroups and internet tutorials, with many professional organisations communicating and conferencing via the web. Business assistance, accounting, career information and proscripting software can be readily obtained.

Clinical tools are also available online. Practitioners may wish to subscribe to or use online assessment tools. Although validation, standardisation and copyright violation may be potential disadvantages of these resources, the advantages are ease of testing from many locations and immediate scoring and assessment.⁹

The internet also provides information that might facilitate patient management or education. This includes hundreds of web sites providing patient education. The practitioner may develop a useful portfolio of useful high quality sites, or produce his/her own website to disseminate relevant clinical and personal information. The DMOZ directory provides a catalogue of professional resources including academic programmes, associations, continuing education, internet psychology resources and publications.¹⁰

Obstacles and disadvantages

Two major issues when using the web for information are too much information and no quality control.¹¹ Wading through huge amounts of uncensored information of low quality is time consuming and frustrating. Focused search engines or edited portal sites maintained by professional societies, professional librarians or other organisations may help to reduce to volume of information retrieved.

Quality is a greater challenge.¹² There has been intense international interest in this issue fuelled by anxieties about patient harm,¹³ but some believe that medical information on the internet should not and cannot be regulated. For professionals, a major issue is recommending sites whose content is evidence-based. Good quality psychological and psychiatric health information may improve treatment adherence. False, explicit or harmful information may have devastating consequences ("copy cat" suicides, for example). A recent review examined three major initiatives to tackle quality issues: codes of conduct or ethics (self regulation through adherence to a code of conduct); third-party certification, and tool-based evaluation.¹⁴ Each of these initiatives had disadvantages, including the burden placed on health information producers, users and certifiers; the need to maintain initiatives; user indifference; and the absence of meaningful enforcement mechanisms.

In the field of mental health, indicators of the quality of information on websites are yet to be determined. Recent research suggests a correlation between web quality as assessed by clinical practice guidelines and site features such as DISCERN ratings and the presence of an editorial board.¹⁵⁻¹⁷ Site popularity is not sufficient. The correlation between quality and Google Page Rank, a measure of site inter-connectiveness, has not been established.¹⁸

In the United Kingdom, there are efforts to provide evidence-based mental health material as part of the National Electronic Library for Health.¹⁹ Nevertheless, quality of information remains an issue, particularly for consumers who do not neces-

sarily have the training or the professional context to assess the validity of information or key indicators of quality.

There has been a lack of evaluation of the effects of internet information on professional services and consumer mental health knowledge. Web information is used increasingly by psychologists and professionals from related professions.²⁰ While this suggests that the internet is a useful medium for information dissemination, it remains unclear whether the internet can foster good clinical practice or improve mental health outcomes. Moreover, there is no evidence that providing high quality web based information to people with mental health problems improves patient outcomes or mental health literacy.²¹

Treatment

TREATMENT SERVICES ON THE INTERNET

A range of different types of mental health services or "interactions" are available through the internet (see table).²²⁻²³ Web-based interactions can be classified in a number of ways according to the intervention type (for example, assessment, early intervention, relapse prevention); the type of relationship (consumer / professional; consumer / consumer; professional / professional); or the purpose of the site (interventions developed by mental health professionals for patients, interventions that encourage self help management of symptoms, and sites designed to provide emotional support).

There are numerous examples of different types of mental health sites. For instance, some sites provide email contact or a bulletin board for advice and referral;²⁴ counselling by email;²⁵ real time counselling through chat technology, web telephony and videoconferencing (telepsychiatry); community treatment programmes operating via email²⁶ and web training, bibliotherapy through downloadable self help guides, and fee-based and free health communication systems delivering tailored treatment.²⁷⁻²⁹ Support groups are proliferating on the internet, and these groups may provide an alternative to conventional face to face therapy.³⁰

The advantages of internet-mediated therapy and support include greater access to remote and rural areas, reduced cost and ease of communication. Patients report that online discussion of problems is easier and allows them to discuss issues they feel unable to raise in a face to face interaction. The internet provides a service for those who are dissatisfied with traditional intervention methods for various reasons, including stigma.³¹

Disadvantages include few training schemes and the lack of developed standards, despite initiatives to address ethical guidelines.³²⁻³³ Some believe that internet therapy may encourage voyeurism and dependency and encourage a "digital divide" due to inequitable access.³⁴ There are two other major obstacles in the development of online therapy: (a) a lack of evidence of the effectiveness of internet interventions and (b) the inadequate pace at which professional organisations are responding to online therapy.

Evidence of effectiveness

There are a number of internet interventions for treating anxiety or depression, including COPE, FearFighter, and the Therapeutic Learning Program.³⁵⁻³⁷ There have been few studies on the effect of these types of interventions, although evidence is beginning to emerge that the internet can be used to deliver cognitive behaviour therapy designed to prevent depression.³⁷ The internet has also been used to modify eating disorders and prevent obesity through exercise.³⁸⁻³⁹ Internet delivery may be as effective as classroom delivery for these interventions,⁴¹

Table 2: Definition of online mental health services

Interactions	Definition
E-mail advice	Non-synchronous e-mail advice from professionals or paraprofessionals. Usually involves a single session.
E-mail counselling	Personal counselling conducted by email by a trained professional. Interactions are asynchronous. Usually involves more than one session.
Chat counselling	Synchronous communication (by writing) online through a virtual chat room or software. This includes synchronous interactions between a professional therapist and client.
Web telephony counselling	Real time speaking over the internet via microphone and speakers between professional and client.
Video conferencing counselling	Real time video interaction produced by video equipment installed on the computers of both parties.
Newsgroups	Group communication, originally designed to allow information on technical topics among internet users.
Chat rooms	Group communication usually for support among people with mental health problems. Either synchronous or asynchronous.
Discussion groups	Group communication that is synchronous or asynchronous. May involve group counselling if mediated by therapist.
Communication systems delivering self help guidance	Internet sites which provide self help programs such as online self help books.
Communication systems delivering tailored and computerised interventions	Internet sites which use technology to provide tailored self help

although a recent randomised trial did not find any effect from an internet-based cognitive behaviour programme.⁴² There is clearly a need for further research.

Further randomised controlled trials of internet technologies are needed to convince clinicians and policy makers of their effectiveness, feasibility and economic value. It is also imperative to understand how consumers use and interact with e-mental health services. Finally, there is a need to investigate the usefulness of professionally mediated online support groups. Evidence to date suggests that face to face professionally mediated support groups are popular, may be effective, and are used by proportionally more individuals with stigmatising disorders, such as depression, than individuals with less stigmatising disorders.⁴⁰⁻⁴¹ It has been suggested that online interactions have unique benefits.⁴³

Professional practice

There is evidence that patients may prefer online help in some instances, yet professional societies may not be responding fast enough to the demand for online services. A recent survey of participants in Norwegian online mental health discussion forums found that the majority of respondents preferred that active participation in these groups by professionals.⁴³ The authors concluded that "Professionals will need new knowledge and perceptions of their roles, and public authorities will have to decide their role in influencing the quality of services offered, and the social values conveyed, to those who seek help through the internet" (p 59). E-mail counselling was also reportedly more popular than face to face or telephone counselling for mental health problems in a recent Japanese survey.³¹

There may be an unmet need for help, with many unable to access services because of expense or lack of accredited counsellors. Online services have the potential to address some of this unmet need. Yet there are also dangers. Practitioners in clinical practice may respond to emails from patients without considering the associated legal and ethical issues. Given these factors, there is a need for professional societies to develop standards and accredited training to help protect practitioners and assist consumers in online counselling.

Future trends

It is difficult to predict future trends, especially in areas where technologies are rapidly developing. In 1943, the Chairman of IBM suggested that "there is a world market for maybe five computers."⁴⁴

Despite the difficulties with prediction, we believe that there will be a rapid expansion of current internet services, including more online professional communication, publishing, training, counselling and online information. Although web counselling may account for considerably less volume of interaction than telephone counselling at present, this is likely to change because more people are beginning to routinely access health information online. At the level of professional practice, it is likely that mental health practitioners will be more informed about online interactions of all types, use them with a more complete understanding of their implications, use and provide patient information electronically to other professionals, (possibly) employ online counsellors as locums and offer more services to those in remote and rural areas. If found to be cost effective and beneficial, consumers and the Government may demand more widely available internet services.

The question remains whether internet technologies can be used to create novel mental health interventions, thereby changing the nature of mental health practice, or whether these technologies provide opportunities to complement already existing practices through their use as adjunct treatments. It is difficult to judge what is truly innovative and unique and what is an extension of existing practices using alternative media. To us, it would seem that internet technologies will both complement and expand existing services. Given the huge appeal of the internet and its capacity for tailored information dissemination, it may radically change how health care can be delivered to the community. The internet creates new networks and partnerships and it provides a unique opportunity for confidential access to a broad range of services and treatment options. For example, the internet allows us to provide services to individuals who do not have access to or do not wish to access general practice services, because these services are not tuned to their needs, because of distance or perhaps because of the stigma they feel. Providing such services through the internet may fulfil goals that were not previously considered a possibility in mental health practice. Ultimately, it may be possible to provide health care services which do not require the assistance of a human operator at any point. Whether this is desirable is highly debatable, but such assistance would certainly to be regarded as a radical change in the provision of mental health services.

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Which treatments are effective for cognitive, behavioural and psychological symptoms in dementia?

This *EBMH* Notebook summarises key messages about the effects of treatments in dementia, sourced from: Warner JP, Butler R, Prabhakaran P. Dementia. *Clin Evid* 2003; **9**: 1010–33.

The authors searched for evidence to October 2002. A full description of evidence of the effects of treatments on cognitive, behavioural and psychological symptoms in dementia is presented in *Clinical Evidence* (and reproduced on the *EBMH* website www.ebmentalhealth.com).

Cognitive symptoms

Beneficial

- Donepezil
- Galantamine

Likely to be beneficial

- Ginkgo biloba
- Oestrogen (in women)
- Reality orientation
- Selegiline

Trade off between benefits and harms

- Physostigmine
- Rivastigmine

Unknown effectiveness

- Lecithin
- Music therapy
- Nicotine
- Non-steroidal anti-inflammatory drugs
- Reminiscence therapy
- Tacrine
- Vitamin E

Key messages

Donepezil

One systematic review and two subsequent RCTs have found that donepezil compared with placebo improves cognitive function and global clinical state at up to 52 weeks in people with mild to moderate Alzheimer's disease. The review found no significant difference in patient rated quality of life at 12 or 24 weeks between donepezil and placebo. One RCT in people with mild to moderate Alzheimer's disease found no significant difference in cognitive function at 12 weeks between donepezil and rivastigmine, although significantly fewer people taking donepezil withdrew from the trial for any cause.

Galantamine

RCTs identified by a systematic review, and one additional RCT, have found that galantamine improves cognitive function compared with placebo in people with Alzheimer's disease or vascular dementia.

Ginkgo biloba

RCTs found limited evidence that ginkgo biloba improved cognitive function compared with placebo in people with Alzheimer's disease.

Lecithin

Small, poor RCTs identified by a systematic review provided insufficient evidence to assess lecithin in people with Alzheimer's disease.

Music therapy

Poor studies identified by a systematic review provided insufficient evidence to assess music therapy.

Nicotine

One systematic review found no RCTs of adequate quality on the effects of nicotine.

Non-steroidal anti-inflammatory drugs

One RCT in people with Alzheimer's disease found no significant difference in cognitive function after 25 weeks treatment with diclofenac plus misoprostol compared with placebo. Another RCT in people with Alzheimer's disease found that indometacin improved cognitive function after 6 month treatment compared with placebo.

Oestrogen (in women)

One systematic review has found that, in women with mild to moderate Alzheimer's disease, oestrogen improves cognition over 7–12 months treatment compared with no oestrogen.

Physostigmine

One systematic review in people with Alzheimer's disease found limited evidence that slow release physostigmine improved cognitive function compared with placebo, but adverse effects, including nausea, vomiting, diarrhoea, dizziness, and stomach pain, were common.

Reality orientation

One systematic review of small RCTs found that reality orientation improved cognitive function compared with no treatment in people with various types of dementia.

Reminiscence therapy

One systematic review provided insufficient evidence to assess reminiscence therapy.

Rivastigmine

One systematic review and one additional RCT have found that rivastigmine improves cognitive function compared with placebo in people with Alzheimer's disease or Lewy body dementia, but adverse effects such as nausea, vomiting, and anorexia are common. Subgroup analysis from one RCT in people with Alzheimer's disease suggests that people with vascular risk factors may respond better to rivastigmine than those without. One RCT in people with mild to moderate Alzheimer's disease found no significant difference in cognitive function at

12 weeks between donepezil and rivastigmine, although rivastigmine significantly increased the proportion of people who withdrew from the trial for any cause.

Selegiline

One systematic review has found that, in people with mild to moderate Alzheimer's disease, selegiline improves cognitive function, behavioural disturbance, and mood compared with placebo, but has found no significant difference in global clinical state.

Tacrine

Systematic reviews found limited evidence that tacrine improved cognitive function and global state in Alzheimer's disease compared with placebo, but adverse effects, including nausea and vomiting, diarrhoea, anorexia, and abdominal pain, were common.

Vitamin E

One RCT in people with moderate to severe Alzheimer's disease found no significant difference in cognitive function after 2 years treatment with vitamin E compared with placebo. However, it found that vitamin E reduced mortality, institutionalisation, loss of ability to perform activities of daily living, and the proportion of people who developed severe dementia.

Behavioural and psychological symptoms

Likely to be beneficial

- Carbamazepine
- Olanzapine
- Reality orientation
- Risperidone

Unknown effectiveness

- Cholinesterase inhibitors
- Haloperidol
- Sodium valproate
- Trazodone

Key messages

Carbamazepine

One RCT found that carbamazepine reduced agitation and aggression compared with placebo in people with various types of dementia.

Cholinesterase inhibitors

One RCT in people with mild to moderate Alzheimer's disease found no significant difference in psychiatric symptoms at 3 months between galantamine and placebo, but another RCT found that galantamine significantly improved psychiatric symptoms at 6 months compared with placebo. One RCT in people with moderate to severe Alzheimer's disease found that donepezil significantly improved functional and behavioural symptoms at 24 weeks compared with placebo, but another RCT in people with mild to moderate Alzheimer's disease found no significant difference in psychiatric symptoms at 24 weeks between donepezil and placebo.

Haloperidol

One systematic review in people with various types of dementia found no significant difference in agitation between haloperidol and placebo, but found limited evidence that haloperidol may reduce aggression.

Olanzapine

One RCT in people with Alzheimer's disease found that olanzapine (5–10 mg daily) reduced agitation, hallucinations, and delusions compared with placebo.

Reality orientation

One systematic review of small RCTs found that reality orientation significantly improved behaviour compared with no treatment in people with various types of dementia.

Risperidone

One RCT in people with moderate to severe dementia, including Alzheimer's disease and vascular dementia, found that risperidone significantly improved behavioural and psychological symptoms over 12 weeks compared with placebo, but another RCT in people with severe dementia and agitation found no significant difference in symptoms over 13 weeks.

Sodium valproate

One RCT found that sodium valproate reduced agitation over 6 weeks in people with dementia, but another RCT found no significant difference in aggressive behaviour over 8 weeks between sodium valproate and placebo.

Trazodone

One RCT in people with Alzheimer's disease found no significant difference between trazodone and haloperidol in reducing agitation. Another RCT in people with dementia plus agitated behaviour found no significant difference in agitation among trazodone, haloperidol, behavioural management techniques, and placebo. The RCTs may have been too small to exclude a clinically important difference.

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