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## Computer-aided psychotherapy: revolution or bubble?

I. M. MARKS, K. CAVANAGH and L. GEGA

**Summary** Research into computer-aided psychotherapy is thriving around the world. Most of it concerns computer-aided cognitive-behavioural therapy (CCBT). A recent narrative review found 97 computer-aided psychotherapy systems from nine countries reported in 175 studies, of which 103 were randomised controlled trials. The rapid spread of the mass delivery of psychotherapy through CCBT, catalysed in the UK by the National Institute for Health and Clinical Excellence's recommendation of two CCBT programmes and the Department of Health's CCBT implementation guidance, seems unprecedented. This editorial is a synopsis of the current status of CCBT and its future directions.

**Declaration of interest** I.M.M. shares intellectual property rights in *FearFighter* and *OCFighter*. K.C. is an occasional consultant to CCBT Ltd and Ultrasis plc.

Early in a new development it is hard to see the big picture. Does the advent of computer-aided cognitive-behavioural therapy (CCBT) herald a revolution in psychological treatment, or is its rosy promise a bubble about to burst? Signs are that CCBT is no bubble (Department of Health, 2007). It is becoming a further option for helping some mental health problems. After a halting start over several decades, new CCBT systems and research are mushrooming around the world in the same way that facsimile transmissions, computers, long-distance telephone calls and electronic mail spread towards the end of the 20th century – now it is hard to remember how we ever managed without them.

There are caveats. Some snags of this therapy resemble those seen during the introductory phase of other technology. Costs fall and efficiency rises as a technology matures, infrastructure grows, and people learn to use it. Healthcare funders naturally hesitate to pay for new forms of care, yet gradually began to fund new drugs, dialysis, scans and the like as the benefits of those became obvious. Past innovations became part of routine healthcare. The National Institute for Clinical Excellence (NICE) in its 2002 appraisal of CCBT did not recommend any form of this therapy for routine care in England and Wales (National Institute for Clinical Excellence, 2002). The Institute's reappraisal (National Institute for Health and Clinical Excellence, 2006a), however, recommends for the National Health Service (NHS) two CCBT systems: *Beating the Blues* for mild and moderate depression and *FearFighter* for phobia, panic and anxiety. This may be the first recommendation of CCBT by a government regulatory body anywhere. In addition, NICE recognised the 'absolute clinical efficacy of *OCFighter*' (*BTSteps*) for obsessive-compulsive disorder' (National Institute for Health and Clinical Excellence, 2006b: p. 4).

This editorial summarises the current state of CCBT based on the authors' recent review of the worldwide English-language literature on the subject (Marks *et al*, 2007). At the time of going to press the review had found 97 computer-aided psychotherapy systems reported in 175 studies, of which 103 were randomised controlled trials of varying designs and quality. Numerous new CCBT systems and studies in widely diverse areas are starting up with astonishing frequency. The review detailed each system and study in narrative form, discussed the various types of CCBT and their functions and modes of access, and issues in their implementation in healthcare systems. We consider four key questions.

## WHAT IS COMPUTER-AIDED CBT?

Computer-aided cognitive-behavioural therapy (CCBT) is any computing system that aids cognitive-behavioural therapy by using patient input to make at least some computations and treatment decisions (Marks *et al*, 1998). This definition excludes video conferencing and ordinary telephone and electronic mail consultations, chat rooms and support groups, which expedite communication and overcome the tyranny of distance but do not delegate any treatment tasks to a computer or other electronic device. It excludes, too, the electronic delivery of educational materials and electronic recording of clinical state or behaviour where those allow no more interaction than do paper leaflets and workbooks.

Computer-aided therapy may be delivered on a range of computing devices, such as stand-alone personal computers, internet-linked computers, palmtops and personal digital assistants, telephone interactive voice response systems, gaming machines, CD-ROMs, DVDs, cellphones and virtual reality devices.

Much CCBT aids the patient and clinician by taking over tasks and therapist time required in usual care. For NICE-recommended CCBT programmes the amount of therapist time saved is estimated at about 80%. For other CCBT, therapist time saved ranges from 0% for *Interapy* (Lange *et al*, 2003) and virtual reality systems (Rothbaum *et al*, 2001) to 100% for free, unmoderated CCBT websites (Christensen *et al*, 2004a). 'Computerised' (rather than computer-aided) CBT programmes with no human contact at all from initial referral to the end of follow-up are exceptional and are associated with huge drop-out rates (Christensen *et al*, 2004a; Eysenbach, 2005; Farvolden *et al*, 2005). Only a small minority of casual visitors to free, unsupported CCBT websites go on to systematic self-help. For NICE-recommended CCBT, patients are typically screened and then offered brief support during therapy. For CCBT on the internet the screening and support can be by telephone or email instead of face to face. How much and what kind of training is cost-effective for screeners and supporters of CCBT users requires testing; in current NHS care most are not therapists.

The time spent on CCBT systems by their users varies across systems, from a

single 20 min session to (more usually) several hours over some months of treatment. Patients access CCBT from a variety of places: home, or libraries or internet cafes where the CCBT system is on the internet or telephone interactive voice response, to general practitioner or other clinics or schools where the CCBT may be on the internet or on a CD-ROM or another device.

## DOES CCBT WORK?

Asking whether computer-aided CBT is effective is about as helpful as asking whether 'medication' is effective. A more meaningful answer comes from asking which CCBT package is effective, for which type of patient, under which circumstances. **Our review (Marks *et al*, 2007) suggests that some CCBT systems are effective for some problems, with outcomes that resembled those for face-to-face therapy where this was tested, whereas others yield little or no benefit to patients.**

Encouragingly, our review found that patients often improved more with CCBT than with contrasting approaches (typically waiting-list controls or usual care), together with an over 50% cut in usual therapist time, for – among others – phobia and panic disorder (*FearFighter* and *Free From Anxiety*); the latter is a translation of *Fri från oro* in Swedish), obsessive-compulsive disorder (*BTSteps*), depression (*Beating the Blues* and a Swedish system), obesity (*Behaviour Therapy for Weight Loss*), childhood anxiety (*BRAVE*), encopresis (*UCanPoopToo*) and asthma (*IMPACT*, *AsthmaCommand*, *AsthmaFiles*). In youths and young adults, prevention CCBT reduced risk factors for developing eating problems (*StudentBodies*) and problem drinking (*Stop, Options, Decide, Act, Self-praise to Think, Not Drink*). Definitive CCBT help for post-traumatic stress disorder, general anxiety and emotional problems, smoking and drug misuse awaits further development. We found just one system (*Sexpert*) for sexual dysfunction, now defunct despite its early promise. Computer-aided therapy for psychoses has yet to bear ripe fruit. No system was found for nightmares, tics, compulsive gambling or enuresis.

Reservations remain regarding CCBT systems that have yet to be tested in randomised controlled trials, or where the trials were of dubious quality or had only

controls on a waiting list or in usual care – designs that do not usually exclude expectancy and placebo effects. **Sobering results came in depression when interactive CCBT (*MoodGYM*) did no better than non-interactive information** (*BluePages*) on the internet (Christensen *et al*, 2004b). Knowledge of what works in psychotherapy, however delivered, is still fragmentary.

## HOW DOES CCBT FIT WITH THE WORK OF CLINICIANS?

Computer-aided therapy promotes service flexibility but questions how much clinician involvement is needed to yield improvement. Although much rests on the CCBT system considered, broadly speaking a few people benefit from CCBT guidance with no human contact at all in any guise, whereas most need a bit of live help by telephone, email, text messaging or face-to-face contact, just as people learn to use computer programs better in general if their maddened frustration can be quickly resolved by contacting someone when stuck ('just right-click on the blue icon at the bottom left of that screen' or 'you need to complete step 2 before going on to step 3', etc.) and if they report at intervals to a coach who praises them for making progress.

The long-held belief that improvement in psychotherapy requires a relationship with a therapist may be true for some patients. It is less true for the thousands of people who improved after being guided mainly by CCBT with only 5 min human contacts to a cumulative total of up to an hour or so over 3 months over the internet, telephone or text messaging, or face to face. Nor is this belief upheld in patients who seek computer-guided help in the first place so as *not* to have lengthy clinician contact (the computer has no eyebrows), not to have to travel to a therapist for sessions scheduled at inconvenient times, with the risk of stigma from being seen to require such help, and because they like the self-empowerment provided by CCBT.

Will CCBT do clinicians out of a job? This seems unlikely. First, as noted, short support is still usually needed to enhance adherence to and benefit from CCBT. The support can vary from screening for suitability and risk assessment, to offering technical advice, monitoring progress and outcome, and giving self-help tips and emotional support for issues not covered by the CCBT system. In a randomised controlled

trial, CCBT outcome was better with telephone support that was given at agreed scheduled intervals rather than on demand (Kenwright *et al*, 2005). In most studies the brief support was given by psychiatrists, psychologists, nurses or general practitioners who were qualified or at various stages of training, or by graduate mental health or other workers with minimal or no clinical background. A second reason why therapists need not fear for their jobs is that some patients will always prefer live to computer-guided help, in contrast to those who prefer guidance by a computer to seeing a therapist. Choice is important. A third reason is that self-help guidance for certain problems is unavailable from any current or planned CCBT system, a situation unlikely to change any time soon.

## HOW CAN CCBT FIT WITH CURRENT HEALTHCARE SYSTEMS?

In the UK, NICE's recommendation of two CCBT systems and current guidance (Department of Health, 2007) to commissioners of primary care trusts are prompting the 153 trusts in England and Wales to buy licences for unlimited password-protected use of CCBT by patients in their catchment area. Each trust organises CCBT delivery in ways that fit local conditions. Such rapid spread of the mass delivery of a major form of psychotherapy seems unprecedented. If CCBT comes to be used sufficiently widely and efficiently as an early step in care it augurs cost-effective benefits to public health that might reduce the chronicity and perhaps even prevalence of some common mental health problems. Provision of CCBT on the internet also facilitates electronic audit of outcome.

## CONCLUSIONS

Around the world an early option for effective self-help by computer-aided psychotherapy is opening up new possibilities of treatment for a growing number of mental health problems. Professionals and healthcare systems are exploring cost-effective ways to employ this new approach to benefit patients. Rapid advances in technology are leading to a ferment of **new ways to deliver psychotherapy. Although many people with mental health problems will continue to choose face-to-face therapy, others may prefer emerging computer-aided**

options that could reduce overlong waiting lists, increase convenience and confidentiality, and lessen stigma.

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