IN REVIEW

Computer Aids to Mental Health Care

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Computer systems are being used increasingly to aid the assessment and self-treatment of mental health problems in adults. Systems vary hugely in the extent to which they meet all patients' assessment and therapy needs and save clinicians' time. Hardly any single system 1) performs every task required from initial screening to the end of follow-up, 2) works 100% independently of contact with a clinician or technician, and 3) is widely available and supported. Most systems use desk- or laptop computers. Some now use palmtop (hand-held) computers. A few employ computerized phone interviews (interactive voice response), usually from home. Virtual reality as a tool is embryonic. Computer aids save time in screening and outcome-tracking in a wide variety of problems. Computer aids to treatment have had promising outcomes in phobic, anxiety, panic, and obsessive–compulsive disorders, nonsuicidal depression, obesity, and smoking cessation. Some systems are installed in a few places as part of everyday clinical care. A growing number should soon be robust enough to ease the lives of many patients, practitioners, and researchers if use of the systems is carefully integrated into normal clinical practice.

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Mental health care is among the many areas gaining from surging advances in information technology. Reviews are outdated by their time of publication, so they can only point to prominent issues in the ongoing flood of work. New aspects will appear as the stream strengthens and as systems to aid care become easier to use yet wider in scope. This paper summarizes and updates recent reviews of computer aids to the assessment, diagnosis, and self-treatment of mental health problems (1–3). Only systems subjected to clinical testing in 6 or more patients are included.

Part I: Assessment, Diagnosis, and Outcome Rating

The assessment, diagnosis, and rating of clinical status often involve pen-and-paper data. Data must be stored, retrieved, and, if they concern many ratings and patients, entered into a computer and checked. This sequence is time-consuming and costly and delays analysis and feedback of the results to the clinician. The problem is reduced by computer-aided interviewing, such as that used widely in surveys (4) but less so in clinics. Tailored systems simplify the interviewer's task and provide more control over the interview. They give the clinician standardized information about a patient's psychopathology and diagnosis. This eases comparative research using routine clinical data, so clinicians do not have to review patients' notes retrospectively, so saving time and effort. Computerized ratings of severity also expedite the tracking of patients' progress.

Disadvantages of diagnosis and rating by computer are the lesser flexibility than when done by a clinician and the inability to record answers outside the scope of the program; for small numbers of interviewees, the effort to set up the program and extract the data may exceed the gains. Before acquiring clinical software, clinicians must know exactly which clinical tasks they want it to undertake (for example, diagnosis, outcome monitoring, or risk assessment) and check that the software expedites this.

Suicide Risk, Diagnosis, and Rating Systems

Suicide Risk

Encouraging results were found with a computer-screen system to assess suicide risk (5). Despite that, 25 years later computers are still rarely used in clinics to assess suicide risk. There are many obstacles to overcome before such a system can be used in routine care (3).

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Diagnosis

Two computer-administered versions of the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule (DIS) were compared (6) in 117 in- and outpatients. In one, the subject interacted with a desktop computer alone, and in the other, the interviewer used the computer as a guide to the DIS. The programs' diagnoses were similar to those with face-to-face DIS interviews. Subjects felt less embarrassed with the computer than with a clinician but said they could describe their feelings better to a human.

Another computer-screen system, for self-assessment of neurotic disorders in primary care, provided similar results for psychiatric morbidity in 92 patients as did an identical human assessment (7).

A self-assessment screening instrument, Primary Care Evaluation of Mental Disorders (PRIME-MD) (8), was administered by an interactive voice-response (IVR) phone system in 200 adults with a wide range of problems who attended 4 primary care clinics (8). In a balanced design, patients rated IVR-PRIME-MD's 26 questions and saw a clinician for a Structured Clinical Interview for *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (SCID) diagnosis. Of the 200 patients, 105 also underwent a clinician-administered PRIME-MD. Most diagnoses corresponded among the IVR-PRIME-MD, the SCID, and the clinician-administered PRIME-MD. The IVR-PRIME-MD was said to be a valid way to improve primary care (9) and to surpass the usual low rate of detection of mental disorders (10).

Rating Systems

Computer-aided rating systems are common in self-treatment systems whether these use computer screens, palmtop computers, or IVR.

Personal Computer (PC): Desk- and Laptop

Phobias. A computer interview was used to rate phobias, mood, and handicap in 43 phobia patients and 10 control subjects (11). Over one-half of the users preferred using the computer to seeing a clinician. Self-ratings by computer correlated well with ratings from subsequent face-to-face interviews with therapists (12). During a drug trial in 44 outpatients with social phobia, computer- and clinician-administered ratings were very similar for the Liebowitz Social Anxiety Scale (13), the Brief Social Phobia Scale, and the Fear Questionnaire (14). One-third of patients preferred the computer and one-third the clinician.

Obsessive–Compulsive Disorder. In a balanced design, scores on a computer self-rated and clinician-rated pen-and-paper Yale-Brown Obsessive–Compulsive Scale (Y-BOCS) correlated highly in 31 patients with obsessive–compulsive disorder (OCD) and in 16 with other anxiety disorders (15). Subjects had no preference for either mode of rating.

Depression and Anxiety. In a balanced design, computer self-rated and clinician face-to-face ratings of the Hamilton Anxiety Rating Scale (HARS) correlated 0.92 in 214 psychiatric outpatients and 78 community control subjects (16). Computer ratings were 5% to 10% higher than clinician ratings in patients and 25% higher in control subjects and were consistent and reliable. Most patients preferred the clinician interview. Computer self-rated and clinician ratings on the Hamilton Depression Rating Scale (HDRS) also correlated highly in 193 depressed patients and 43 controls (17,18). In a balanced design, computer self-ratings and pen-and-paper clinician ratings of the HDRS correlated 0.96 in 72 depressed outpatients and 25 control subjects (19). In 173 outpatients with an affective or anxiety disorder and 76 nonpsychiatric control subjects, patients preferred clinician- to computer-administered ratings of the HDRS and HARS, but felt less embarrassed with the computer, while control subjects had no preference (20).

Alcohol and Other Substance Abuse. More alcohol consumption was admitted by men in computer than human interviews in Glasgow (21) and Edinburgh (22), and a twice-higher rate of alcohol abuse was found with the IVR-PRIME-MD than with clinician interviews in the United States (US) (9). In contrast, in 3 North American studies similar alcohol use was found by computer and by human interview (23; 24 as cited in 25).

Palmtop Computer

Hand-held palmtop computers can help sufferers record events more quickly than do pen and paper at the time that events occur (for example, panic). Palmtops have beepers that can prompt patients at preset times, and they allow downloading of data to another computer, reducing labour and errors in transcribing from paper diaries. Reminders can guide subjects to answer all relevant questions.

IVR

An IVR system links a telephone to a computer. Subjects call the computer by touch-tone telephone and drive the interview by pressing keys on their telephone keypad. They may have a printed guide on hand during their call.

OCD. In a balanced design in 18 OCD patients, the Y-BOCS and Clinical Global Impression (CGI) were rated by the patient via IVR, by the patient using pen and paper, and by a research assistant using pen and paper after interviewing the patient by phone (26). The 3 sets of ratings correlated very highly. Patients did not object to doing IVR self-ratings but preferred live phone interviews. Other patients, seeing 1821 physicians across the US, rated the Y-BOCS and Patient Global Impression (PGI) and answered other questions by IVR (27) at intervals until 12 months postbaseline. Patients made 1232 calls at baseline but only 40 calls by month 12.

Depression. IVR eased the screening of 1812 people during 2 weeks that included National Depression Screening Day in the US (28). Callers rated themselves on the 20-item Zung Depression Scale and answered other questions. Most callers answered all questions.

Broader Outcome-Monitoring

Systems to track broader aspects of clinical outcome (more than 1 or 2 rating scales) usually present information on a computer screen. Telephone IVR systems for self-care included several outcome scales, such as the Y-BOCS, HDRS, Medical Outcome Scale, Work/Social Adjustment, and CGI, and systems for smoking cessation.

A computerized, goal-oriented, psychiatric note-making system was reported in 1977 (29). Clinicians accepted the system, and their administrative time fell, as nonmedical staff could input much of the information. Ongoing progress notes usefully jogged clinicians' memories during treatment-planning. A later system enabled a clinician to pick the patient's symptoms from a list and devise a treatment plan to deal with them (30). The system improved psychiatric records and allowed clinicians to work within a clear treatment framework of goals and interventions. Another system helped staff assess and track the progress of inpatients with schizophrenia or major depression (31). For the Brief Psychiatric Rating Scale rated on the computer versus pen and paper, the correlation was 0.68.

I developed a broad approach to track patients' outcomes at intervals and tested a pilot desktop computer system to deliver it. Over 6 years it was used by 600 in- and outpatients and 60 clinicians (32–36). Ratings were displayed as "psychiatric temperature charts" showing patient progress and the cost of obtaining that progress, available at a glance by the clinician, patient, and supervisor. Aggregation of the data from individual patients permitted analysis of outcome by age, gender, source of referral, diagnostic group, and severity. Helpful insights resulted; for example, that pretreatment disability in OCD was greater in sufferers who were inpatients than outpatients, that inpatients took twice more therapist time and cost 10 times more to complete treatment, and that the most rapidly improving patients were not necessarily the most satisfied ones. The pilot system was succeeded by Clinical Outcome and Resource Measure (CORM). CORM now operates on local area networks in clinics in the United Kingdom (UK), Australia, and New Zealand. Over 4 years, CORM has been used by 150 clinicians with 2000 patients having a wide variety of disorders (37).

Discussion of Part I

Patients often find it easier to disclose sensitive information to a computer system, despite knowing that humans will see their answers, particularly regarding alcohol and drugs, sexual behaviour (1), HIV risk factors (38), diet, and suicidal ideas (5,39).

With large numbers of patients, it is quicker to monitor the benefits and costs of clinical care with computerized outcome-tracking systems than with pen-and-paper forms. Such systems, however, have been slow to spread and have been used more in research trials than in routine care. Barriers to their spread in everyday practice and how those might be overcome are discussed (37) by I Marks. Incentives are crucial. In New Zealand, an insurance company pays clinicians higher than usual reimbursement rates for each CORM outcome chart supplied per patient. Only when reimbursement, career advancement, or some other benefit flows from tracking the patient's clinical course are computerized outcome-tracking systems likely to be widely adopted.

Part II: Self-Treatment

This part of the review deals with computer systems that make computations or decisions for self-treatment. It omits optical scanning of pen-and-paper ratings for data entry into a computer, consultations of clinicians by email, voicemail, and fax, and access to computer-stored information; such processes are valuable but use no computer decisions about treatment.

In most computerized self-treatment systems, the client interacts with a clinician at some point, even if only for a few minutes of initial screening by phone. After such screening, having a practitioner advise using a self-treatment system can be a strong motivator. Patients are more motivated to start using the system under brief supervision than they are to access it cold, and patients subsequently can ask people for help if they get stuck. Adherence may strengthen even more if users expect eventually to report their progress to a person.

A few moments of human encouragement may be a key catalyst. With most computer-aided systems, patients first saw a clinician who suggested that they use it, could access human help if it broke down, and reported progress to a clinician. Perhaps users would improve less without that contact. The prospect of effective self-treatment systems that need no human contact or supervision or reporting to at any time has rarely been met.

In time, systems that are 100% independent of human help will emerge for sufferers who are particularly self-reliant or who don't want the stigma, bother, or expense of seeing a clinician. Some people cure themselves just with guidance from a self-help book. For the most part, computers aid care for mental health problems in the way that computers boost banks' productivity. Bank customers must still be able to access people, even if only by phone, fax, or letter, to answer queries. Patients using computer-aided care, too, are more confident if people are at hand for a few minutes (perhaps by

phone) should they get stuck or have a question the system can't answer.

Self-treatment systems vary hugely in how much of the entire therapeutic process they can handle without therapist input (5% to 95%) (40). Basic systems may save just 5% of clinician time and still have a clinician present much of the time; for example, systems that allow patients with phobias to select and view relevant pictures, such as videoclips of spiders or virtual reality depictions of heights. Broader systems on a palmtop computer cut by 30% to 70% the number of therapeutic tasks and time needed from a clinician.

A few systems do most of the treatment tasks required, eschewing 70% to 95% of the time needed from a clinician. These help patients analyze the problem, make a personalized treatment plan, implement it daily, recruit relatives as cotherapists if needed, rate progress, practise coping with setbacks, and prevent relapses. Such systems may need only initial screening of the patient by a clinician and brief human introduction to their use at the start and help if they break down later.

This review concerns self-treatment systems that have had clinical testing, even if not a randomized control trial (RCT). Some of these systems may become everyday tools of clinical practice. This review covers only clinical problems in adults seen by mental health care workers rather than other practitioners.

Self-Treatment by Computer

Emotional Problems

Certain systems for students are relevant. The Dilemma Counseling System (DCS) (41) taught students facing difficulties how to help people apply dilemma-counselling principles to their own life problems. Another system teaches interpersonal skills (42). Both systems were of some value in RCTs. Related ideas plus cognitive-behaviour therapy (CBT) were included in a Therapeutic Learning Program (TLP) (43) used during group therapy. Of 278 patients who used TLP, 78% were satisfied with it and felt less distressed, and 95% felt more able to handle their problem. In an RCT of TLP versus standard CBT in 109 outpatients referred for stress management, at posttreatment and 6-month follow-up both groups were improved, but TLP saved 40% of therapist time (44). TLP was also helpful in another RCT in 90 subjects (Jacobs 1995, as cited in 45).

Anxiety Disorders

A prototype problem-solving aid for self-treatment (Worrytel) was created for general anxiety in primary care (46). In a pilot test, 20 patients with anxiety and 5 family doctors rated it as easy to use, acceptable, and empathic. The doctors judged that Worrytel could aid a consultation by giving clarity and focus regarding anxiety-evoking problems presenting in primary care.

An RCT tested the outcome of computer-aided self-exposure therapy in 84 phobic outpatients who had agoraphobia, panic, or social or specific phobia (47,48). After a screening interview with a psychiatrist, patients were randomized to self-exposure instructed by 1) the psychiatrist, 2) a self-help book, or 3) a computer system based on that book. At the end of treatment and 6-month follow-up, all 3 groups had improved similarly and markedly on phobias, work, and social adjustment, had similarly few dropouts, and were equally satisfied with treatment. Improvement was like that obtained in 20 matched historical control subjects (49) and in past studies of self-exposure.

A later broad system to help self-exposure (Fearfighter) was used in a self-care centre by 50 patients with agoraphobia, panic, and other phobias (IM Marks, unpublished manuscript, 1999). Use of Fearfighter cut the clinician's time by about 60%. A basic system displaying spider pictures or videos on a computer screen while a human was present led to improvement in an RCT of 38 spider-phobic volunteers (50).

Kirkby devised a computer screen simulation to teach spider phobics to do vicarious exposure (not self-treatment) with a computer figure. In an RCT of that system (51), 49 spider-phobic volunteers were randomized to do 3 sessions of 1 of 3 forms of computerized vicarious exposure in 3 sessions over a mean of 37 days. By posttreatment and 9 months later, all 3 vicarious-exposure groups had improved similarly. Kirkby's vicarious-exposure simulator was modified for OCD (52) and used by 13 OCD and 10 control volunteers in 3 sessions over 2 weeks. The OCD subjects improved, and good performance of vicarious exposure in session 1 predicted pre–post gains.

Depression

A PC system delivered CBT for nonsuicidal depression over 6 sessions (53). In an RCT, 36 volunteers with nonsuicidal depression (Beck Depression Inventory mean score 23) were randomized to 1 of 3 groups: 6 sessions of CBT guided by the computer system, 6 sessions of CBT by face-to-face interview with a therapist, or a waiting-list control group. At posttreatment and 2-month follow-up, both CBT groups had improved more than did control subjects on depression and on automatic thoughts.

In an RCT comparing like with unlike (54), 22 depressed inpatients had 2 weeks of human-instructed CBT, 2 weeks of computer-instructed cognitive therapy (CT) using an Overcoming Depression program (55), or inpatient care as usual. Unlike human-instructed CBT, computer CT did not teach behavioural activation or suggest behavioural or individualized homework. Given this major problem, it is not surprising that at discharge, unlike human-CBT patients, computer-CT patients were unimproved.

In a multicentre RCT of a computer system to aid CBT for major depression (JH Wright and others, unpublished manuscript, 1999), patients had 9 sessions of therapist-guided CBT either 25 minutes long with computer-guided CBT or 50

minutes long without computer CBT, or were assigned to a waiting-list control group. Results are imminent.

Smoking, Alcohol Use, and Psychosis

A 5-week computer-aided system to stop smoking was made available 24 hours daily and linked to an electronic bulletin board for contact with fellow smokers, former users, and clinicians (56). Efficacy was confirmed in a RCT (57) that randomized 1158 smokers (84% male) from North America and elsewhere to the full program or to a control program lacking the main program's features. Over 60% of subjects accessed the system twice or more. Smokers who accessed the full program became increasingly abstinent over the 6-month follow-up period.

In an RCT, 40 nonalcoholic heavy drinkers were randomized to computer-based behavioural self-control training either immediately after pretreatment assessment or after a 10-week waiting control period (58). After 10 weeks, immediately treated subjects reduced their drinking more than did delayed-treatment cases. Control subjects only reduced drinking at 20 weeks, after doing computer-aided behavioural training. Both groups maintained gains at 1-year follow-up.

Use of a computer-aided relapse management (CARM) program for alcohol dependence by 11 inpatients over 1½ hours was compared with a session of human-guided relapse prevention in 9 inpatients (59). It was said to add value in care and to be in regular use in some UK clinics.

A "cognitive-rehabilitation" system was tested in an RCT in inpatients with chronic schizophrenia or schizoaffective disorder (60). Patients were randomized to 24 sessions of 30 minutes each on the computer over 8 weeks (n = 40) or to no treatment as usual (n = 29; more patients dropped out). At posttreatment, computer-using subjects had fewer cognitive complaints and better memory, but the effect of the extra attention they received was not controlled for.

Self-Treatment by Palmtop Computer

Unlike desk- or laptops, a suitable palmtop computer system enables patients to get flexible advice as needed (2). Advice can be tailored to an individual's progress during treatment and can be repeated often without using extra therapist time.

Anxiety Disorders

A palmtop-computer aid to self-treatment (61) was tested in an RCT (62) of 18 panic disorder patients. They had either 11 CBT sessions or 4 CBT sessions plus the palmtop computer. Both groups improved similarly up to 6-month follow-up. Using a similar hand-held system (Fearbusters), 53 volunteers with social phobia were helped with live exposure between CBT group sessions with a therapist (63); an RCT (K Gruber and others, unpublished manuscript, 1999) compared groups receiving the following: 1) 12 therapist-CBT sessions, 2) 8 therapist-CBT sessions plus the hand-held system; or 3) 12 weeks on a waiting list followed by 8-therapist CBT sessions with no computer. Dropouts were few. At posttreatment, social phobia had improved more in each CBT condition than on the waiting list. Both CBT groups improved similarly by 6-month follow-up. The computer allowed one-third fewer human-CBT sessions without impairing outcome. Some of the people with social phobia were embarrassed by using the computer in public, as was an OCD patient who used a hand-held system (64) that helped her use exposure and ritual prevention (ERP) to reduce markedly her checking over a year. A palmtop computer system has also been explored for generalized anxiety disorder (MG Newman and others, unpublished manuscript, 1999).

Obesity

An RCT tested whether a palmtop computer could enhance CBT for moderate obesity in 90 nonbulimic women (65). The women were randomized to 1 of 3 obesity treatments: 1) an introductory group session about how to use the system, a manual, an obesity program, and a calorie book, or 2) the same as group 1 plus 4 group-CBT sessions with a therapist, or 3) 10 group-CBT sessions with a therapist. Individuals in all 3 groups lost about 5 lbs by week 12 and continued similar weight loss to 1-year follow-up. Cost-effectiveness was greater for the computer-treated group. In another RCT by the same group (66), 40 obese adults had 4 or 7 days of computer-CBT alone or 4 days of computer-CBT plus therapist-CBT. Outcome did not differ significantly across groups. Computer-plus-therapist patients dropped out less; weight loss was predicted by use of the palmtop computer.

Self-Treatment by IVR

An IVR system links a touch-tone telephone to a computer. Subjects call the computer and may have a printed guide on hand before or during their call. They drive the IVR interview by pressing keys on the telephone keypad to access digitized speech segments, which were prerecorded in natural voice. The keys pressed determine which segments are heard. Calls can be made potentially 24 hours daily from home to a suitable IVR system anywhere in the world. IVR is useful for people who cannot access desktop or portable computers and who cannot see a clinician because of distance, time-scheduling, inability to travel, depression, or embarrassment.

OCD

An IVR system with a manual for OCD was developed in a US–UK collaboration (67–69; A Nakagawa and others, unpublished manuscript, 1999). Called BT STEPS, the 9-step system helps OCD patients plan and do their own ERP from start to end with almost no clinician contact beyond a brief screening interview. Patients receive a manual to read and a personal identification number for accessing the IVR. Within each step the manual directs patients to call the IVR system. Most calls were made outside of usual office hours.

Two uncontrolled studies tested 63 OCD patients in the UK and US and had a similar outcome. Eighty-five percent of patients completed the self-assessment steps, and 45% went on

to do 2 or more ERP sessions. Patients improved in rituals and disability as much as they would usually with selective serotonin reuptake inhibitor (SSRI) medication. Gains related to how many ERP sessions were completed. Improvement with BT STEPS was similar to that in matched historical control subjects who had face-to-face behaviour therapy. Better initial motivation and rapid completion of self-assessment predicted better outcome. Patients who failed to complete BT STEPS self-assessment also failed to complete subsequent face-to-face behaviour therapy.

BT STEPS has also been used by 70 patients in a regular clinic in the UK. In a 200-patient multicentre RCT in the US and Canada, improvement with BT STEPS was better than with relaxation-control treatment and almost as great as with clinician-guided ERP (70).

Depression

The US–UK team that developed BT STEPS also designed an IVR system with a manual for nonsuicidal depression. Called COPE, it guides CBT self-treatment with booklets and accompanying IVR calls. An uncontrolled trial tested COPE in 41 patients in Boston, Madison, and London (71). Patients used COPE over 12 weeks and made over one-half of their calls outside of regular office hours. All patients completed self-assessment and 66% came for an office visit at 12 weeks. Patients improved significantly in mood and disability, at least as much as (in a metaanalysis) in the NIMH Depression Collaborative Research Study. Gains were greater with more IVR calls.

Smoking

A sophisticated IVR system for smoking cessation by behaviour therapy taught preparation, quitting, and maintenance (72). In 4 US states, 975 smokers gave written consent to use the system, of whom 59% called at least once after receiving an information sheet, the toll-free number to call, and an identification number for access. As with BT STEPS and COPE, more IVR calls related to better outcome. Of all 571 starters, 35% quit smoking while using the system, and 14% were abstinent 6 months after their first call. Abstinence rates were at least as high as with other media-based programs though lower than in face-to-face programs. Subjects who quit smoking during their IVR program were far more likely than the others to be abstinent at 1-month follow-up.

Self-Treatment by Virtual Reality

"Immersive" virtual reality (VR) can be a basic aid to exposure therapy with situations that aren't easily accessed in other ways. Subjects don a helmet with sensors so that head and hand movements seem to move objects in an environment seen within the helmet. In an RCT (73), 10 students with a fear of heights had 7 VR sessions with the therapist in the room and improved in their height phobia, unlike 10 waiting-list control subjects. No follow-up was noted. For VR to become a regular clinical tool it will require more development and reduction in cost.

Advantages

For patients: 1) Patients can have more therapy time than their clinicians can usually give them to explore and understand their problem, do therapy homework, and monitor progress. 2) For systems available around the clock, ease of time-scheduling allows patients to help themselves in their own time at home rather than having to schedule an appointment with a clinician. 3) Easier access could lead more sufferers to access care. 4) Easier access to care could mean earlier access to care, so preventing disability from and chronicity and intractability of mental health problems and reducing their cost to sufferers and health services. 5) If self-help systems can be accessed from home by phone or via the Internet or are available at non-mental health sites in the community, confidentiality can be greater and stigma avoided. 6) Consistency of treatment instructions is greater when delivered by computer than by a human. 7) Self-treatment can enhance a sense of control over one's own destiny. 8) Computerized educational and treatment instructions can be more easily updated and disseminated without having to retrain staff or update and print leaflets or books. 9) Motivation can be enhanced by giving patients access to encouraging and attractively presented information on computers and if computer-instructed guidance is available immediately as it is needed, as with IVR and hand-held systems. 10) Voices giving instructions in a computer system could be varied according to patient preference by gender, age, accent, or language.

For clinicians: 11) By taking over repetitive aspects of care, computer aids can free clinicians to devote more time to analyze symptoms and make better informed decisions (74) and to help more patients than before. Full benefit from such systems can be reaped only when clinicians integrate patients' use of them into their style of everyday practice and are available for troubleshooting when patients use them. 12) Clinicians can more easily access up-to-date information by computer.

For research practitioners: 13) Computer systems allow better control of treatment components to better determine which ingredients are effective (for example, 72). 14) Computerized clinical aids can greatly speed collection, retrieval, and analysis of data from large patient cohorts.

Disadvantages

1) Some users are technophobic. This can be reduced by having trained staff to briefly supervise patients who are starting to use a computer system and by simplifying operation of the system. Few patients fear using a phone to access IVR. 2) Computer systems are unable to detect and deal with complications that they were not or cannot be programmed for.

3) Vital yet unknown therapeutic ingredients may be absent from a computerized system, despite clinicians employing those as unwittingly as they breathe. 4) Computer systems apply rules unvaryingly. This advantage becomes a weakness when a more flexible approach is needed, which clinicians employ intuitively. 5) If security of a central database of a self-treatment system fails, hackers could screen and access a greater number of confidential records than could thieves in a paper system. 6) Clinician numbers could shrink. This seems unlikely to happen because of the huge unmet demand for early care of mental health problems and the desire of many patients for some human contact, even if much of the therapy is computer-aided. 7) It is fiendishly difficult to create reliable self-treatment systems that are broad enough to mimic most aspects of the therapeutic process so effortlessly that occasional help from a clinician or technician is no longer needed. 8) Universities fail to give staff and students much academic credit for creating software versus publishing an RCT of that system.

Discussion of Part II

Despite the wealth of encouraging research, few computer aids are used in regular mental health care in nonresearch settings (75). RCTs still have to show that computer self-treatment systems do better than self-help books and audio- or videotapes, which cost less to produce but neither are interactive nor permit rapid monitoring of progress of large numbers of users. These caveats notwithstanding, the long haul from the birth of the new clinical technology to its maturation as an everyday tool seems likely to fruit widely soon. Computer aids to mental health care are poised to benefit practitioners and patients who are aware of the new opportunities.

Clinical Implications

- Computer aids to assessment and self-treatment have been effective and saved clinician time in controlled trials.
- Some self-treatment systems for phobia, panic, and obsessive–compulsive disorder are in everyday use in a few clinics.
- Certain systems improve patients' access to consistent and confidential expert advice, and synergy results from a clinician's brief supervision.

Limitations

- Different systems vary hugely in the extent to which they meet all patients' needs and save clinicians' time.
- Clinician time is still needed to screen and advise patients before they can use a system well.
- Dissemination of computer systems for everyday care has been slow.

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Résumé

On se sert de plus en plus des systèmes informatiques pour l'évaluation et l'autotraitement des problèmes de santé mentale chez les adultes. Les systèmes varient grandement quant à la mesure dans laquelle ils satisfont à tous les besoins d'évaluation et de thérapie des patients, et épargnent du temps aux cliniciens. Presque aucun système ne peut 1) exécuter chaque tâche requise depuis le dépistage initial jusqu'à la fin du suivi, 2) travailler totalement indépendamment de tout contact avec un clinicien ou technicien et 3), être largement accessible et soutenu. La plupart des systèmes utilisent des ordinateurs de bureau ou portatifs, ou des ordinateurs de poche. Quelques-uns recourent aux entrevues téléphoniques informatisées (réponse vocale interactive), habituellement à domicile. La réalité virtuelle comme outil en est encore à ses premiers balbutiements. Les outils informatiques épargnent du temps au dépistage et au suivi des résultats de problèmes très variés. L'aide informatique du traitement a eu des résultats prometteurs en ce qui concerne les troubles phobiques, d'anxiété, de panique et obsessifs-compulsifs, la dépression non suicidaire, l'obésité et le renoncement au tabac. En quelques endroits, les systèmes installés font partie des soins cliniques quotidiens. Un nombre croissant d'entre eux devraient bientôt être assez solides pour faciliter la vie de nombre de patients, de praticiens et de chercheurs, si leur utilisation est soigneusement intégrée à la pratique clinique normale.