Psychotherapy Guidebook

Computer Therapy

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Table of Contents

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DEFINITION

Simply put, Computer Therapy in psychiatry involves the use of computers to treat persons with psychiatric problems. Behind this simplistic definition lies an extremely complex field that seeks to integrate the rapid and continuing progress in computer hardware (computing machines) and software (computer languages and programs) with the still poorly understood art of psychotherapy.

HISTORY

Development of the first computers made it possible to process mathematical symbols at a rapid rate. Programming languages to deal with linguistic symbols soon followed and, with steady refinement, have allowed easy programming to process language strings that can express quite complex meanings. With the advent of on-line computing, in which each user interacts directly with the computer through a computer terminal rather than indirectly, immediate computer responses to user inputs became possible. Time-sharing techniques permit a single computer to interact simultaneously

with many users, dramatically reducing computing costs (now less than $1 per hour on some machines). Harnessing the interactive computer medium to psychotherapeutic tasks seemed a natural step in the rapidly growing use of computers, and proponents prophesied widespread availability of expert and inexpensive computer therapies.

By 1965, a program that crudely simulated Rogerian psychotherapy had been developed (see Weizenbaum, 1966). Colby, who has been a seminal and steadily productive worker in this field, had begun his studies, Slack had conducted medical interviews that had apparent psychotherapeutic effects, and other workers were beginning to apply computers to studies and treatments of psychophysiologic problems (see Lang, 1969). Despite this early promise, there has been neither the widespread interest nor extensive development of Computer Therapy that many people expected.

Interviews can be carefully written to display warmth and humor and to be nonjudgmental or confrontational, as appropriate. In these interviews, therapeutic education, reassurance, suggestion, modeling, support, and authorization to express emotion are all possible.

Colby's work has gone far beyond the simple and directly linked question-answer branching of most computer medical interviews to develop more complex models of human thought with a capacity to evolve in different

directions based on the continuing patient-computer interaction. His program for autistic children who had no socially useful speech was helpful in initiating speech in thirteen of seventeen patients with whom it was tried (see Colby, 1973). Another Colby program simulates a paranoid patient so successfully that it is virtually impossible to determine that one is interacting with a computer rather than a person.

TECHNIQUE AND APPLICATIONS

There are several different techniques of Computer Therapy in psychiatry based on different patient problems and different conceptualizations of etiology and therapy. The hallmark of most computer therapies has been a direct interaction between the patient and the computer. It is this immediacy and anthropomorphization of a machine that some find so threatening, regardless of any associated benefits.

Reactions of most psychiatric patients to computer interviews that collect past history and present symptom descriptions are strongly positive, and some patients in a variety of settings have found the interview experience itself helpful and, in their own words, “therapeutic.”

The biofeedback field has blossomed with the availability of small computers that can convert the patient’s physiologic functions into electronic signals that then guide the patient in modifying those very functions. Though

this field has pulled back from its overly optimistic and simplistic beginnings to a more reasoned and focused position, the on-line computer will clearly play an important role in defining the ultimate applications of biofeedback to medical problems.

Computers have also been used to a limited degree in the development of hierarchies for systematic desensitization as well as controlling tape recorders that conduct actual systematic desensitization therapy. Though the necessity for relaxation as a part of this behavior therapy has been seriously challenged, the use of computers in providing behavior therapies clearly offers the possibility of widely available, standardized treatment at low cost.

One of the major problems in psychotherapy practice and research has been to systematically define the treatment technique, so that it may be taught to other therapists and applied in a standardized fashion to patients whose disorders may respond to that particular kind of psychotherapy. Even in the face of widely variable individual drug metabolism and incomplete compliance with psychopharmacologic treatments, standardization of psychoactive drugs has permitted substantial progress in this area. As with the rest of medicine, the task for computer therapists is to develop specific computer therapies and test them with specific psychiatric disorders. Unlike psychotherapy administered by human therapists, which tends to vary greatly between different therapists and even in a single therapist's treatment

of different patients with the same disorder, computer psychotherapy will have the possible advantage of holding constant the computer statements across a whole series of similar patients.

Work is now underway to develop a psychiatric interview administered directly by computer to psychiatric patients that will provide research-quality diagnoses. Diagnoses with specific implications for treatment assignment may lead the computer into a therapy-broker role where the computer recommends the most appropriate initial treatment for a patient based on a comprehensive evaluation. Treatment recommendations might include psychotherapy of a specific kind (administered by a computer or a human with demonstrated effectiveness in treating patients with a particular disorder), medications, or electroconvulsive therapy, alone or in combination.

There has been occasional criticism of the use of computers in psychiatry in general and for data collection from patients in particular. Computer psychotherapy seems even more threatening to some individuals, yet clearly, the use of nonhuman devices in medicine is far from inhumane since technological advances in many fields have brought substantial health benefits to patients. Critics often speak on behalf of a patient constituency without consulting them. Whenever patient-computer interactions have been evaluated by patients, the reaction has been strongly positive, often to the point of preferring the computer as an interviewer over the doctor. This

seems to be especially true when sensitive subject matter is being discussed as is often the case in psychotherapy. Too often, there is an immodest overestimation of the benefits of human psychotherapy based on an absence of comparisons with other treatments and occasionally on simple self-interest. Compounding these deficiencies is a large public health problem poorly met by present-day techniques. There is clearly a need for computer therapies in psychiatry, though their proper development will require careful work and will be limited more by the problems inherent in psychotherapy than by practical computing considerations.