THE TECHNIQUE OF PSYCHOTHERAPY

COMPUTERS IN CLINICAL PRACTICE

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e-Book 2016 International Psychotherapy Institute

From *The Technique of Psychotherapy* Lewis R. Wolberg

Created in the United States of America

Computers in Clinical Practice

Recording is being revolutionized by advances in computer technology. Machines can never replace the heuristic propensities of humans. But machines can supplement decision making and contemplative facilities by sorting, storing, categorizing, and retrieving vast amount of information with astonishing rapidity, efficiency, and accuracy. As new developments in switching, information theory, and automatic coding techniques become incorporated into computers, the machines' capabilities will undoubtedly be expanded to include preparation of software programs for instructions fed into the machines. For 30 years, computers have been indispensable instruments in medicine, aiding in diagnosis by categorizing and analyzing symptoms and physical findings (Brodman and van Woerhom, 1966).

New means of cataloging, storing, and dealing with complex variables have made it possible to employ the modern computer in psychiatric hospital systems Glueck and Stroebel, 1975b; (Laska et al., 1967) and even statewide systems (Sletten et al., 1970). In clinical practice, attempts have been made to computerize data regarding the history of patients, their mental status, and symptom clusters in an attempt to aid in diagnosis, prognosis, progress evaluation, and treatment outcome (Colby et al., 1969; Spitzer and Endicott, 1969). The making of computer diagnosis has been especially challenging and has attracted an increasing number of experimenters (Glueck and Stroebel, 1969; Maxwell, 1971). Glueck and Stroebel (1975b) have estimated that classification-assignment techniques are now available to permit accuracy in diagnostic labeling comparable to that of expert clinicians with an accuracy nearing 100 percent, but they point out that there is a lack of ability "of any classification system to achieve more than 70 to 75 percent inter-rater reliability in the prediction of psychopathological criteria."

Some attempts have also been made to refine computerized analysis of the electroencephalographic and neurologic findings, and innovative tactics have been evolved for various other types of data

recording. The development of automated files help expedite the tabulation and retrieval of diagnostic, treatment, progress, and disposition information. Simple and effective methods for computer programming immeasurably help administrators, auditors, researchers, and ultimately clinicians by simplifying the massive amount of memoranda included in the traditional case record, enabling the scanning of essential elements of a case without needing to spend endless hours looking for pertinent facts.

The programming of computers to process the data of psychotherapy requires that therapists reduce the complex interpersonal transactions that take place to mathematical symbols that can be coded. Because the full encoding of human pursuits is not now, and probably never will be, complete, only limited parameters can be assigned to the circuitry of electronic computers. A number of interesting experiments have been reported. For instance, Colby (1963) has described the simulation of a neurotic process by a computer, and Bellman (1957, 1961) has, through dynamic programming, attempted to contribute insights into the interviewing process. A computer-assisted simulation of the clinical encounter is described by Harless and his associates (1971, 1972) and Hubbard and Templeton (1973).

More mundane operations that are being performed by computers include work with psychiatric records and other data related to the patient's history, symptomatology, and responses to therapy that may speedily and systematically be "memorized," synthesized, and retrieved. Feeding into the machine the recorded history, the psychological test results, and the symptoms of the patient, computers will quickly process these facts against the statistics of relative possibilities of diagnosis, prognosis, and treatment approaches (Rome et al., 1962; Swenson et al., 1963).

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For the most part, computers in psychiatry have been used mainly in clinics, hospitals, and group practices for purposes of office automation. In this capacity they have improved productivity greatly, providing access to satellite offices and to vast data banks. For word processing, data processing, electronic mail, record keeping, billing, accounts payable, accounts receivable, preparation of insurance forms, and other office functions they are proving indispensable. This is invaluable when extensive reporting is necessary to qualify for third-party payments and in response to demands for better accountability and quality of care. A number of computer service bureaus now exist to provide fiscal-administrative help to mental health facilities in line with these demands. Software packages are available that help streamline office management, accounting, scheduling, billing, insurance form preparation, and online inquiry.

With the evolvement of efficient, low-cost microcomputers, clinicians are increasingly using computers for data organization and management of their practices. The possibilities are enormous and, for certain functions—as when vast amounts of data must be recorded, processed, stored, retrieved and printed—there is no equal to the efficiency of a computer. Whether computerization can be cost-effective for the therapist in solo practice is another matter. Simple office tasks such as billing and the balancing of checkbooks can be done more rapidly by hand. Although patient records take a good deal more time to process in a computer, they can be meticulously kept and easily and accurately updated. The preparation of reports and manuscripts can efficiently be accomplished through word processing. Programs such as Word Perfect and Microsoft Word, once mastered, can be a godsend for a therapist writing a paper. If a literature search on a certain topic is necessary, a communications program using a modem enables rapid access of data bases that will produce in minutes a printout equivalent to days of painstaking exploration in a library. The National Library of Medicine has a computerized literature retrieval service, MEDLARS

(Medical Literature Analysis and Retrieval System), consisting of 20 data bases that are accessible from terminals at more than 2000 U.S. institutions. Among the most commonly used component is MEDLINE, which has about four million references to journal articles and books. An area that is now being developed is artificial intelligence, with the goal of answering questions beyond the MEDLAR system that are often diagnosis related and "perform at the level of a human expert in the area that they're programmed for" (JAMA 252: 2337, 1984). Other commercial databank services for literature searches include SCIMATE, Knowledge Index, BRS Catalogue, and Psychoinfo Database, the latter developed by the American Psychological Association and which has more than four million references and abstracts. In research, the computer is irreplaceable for statistical analysis, data management, graphics plotting, creation of tables, and indexing references.

Apart from word processing and research, the clinician may find sundry other uses for the computer. Among the software programs now in use are ones for automated history taking, clinical records management, patient interviewing, mood assessment, treatment planning, medication monitoring, outcome monitoring, projective testing, and patient-therapist simulation. Therapists may through rating scales be helped in estimating the mental status of patients, evaluating prognosis, predicting outcome, making a diagnosis, assigning special treatments, and tracking progress in therapy (Glueck and Stroebal, 1980).

The question arises as to whether computers can improve quality control of patient care. In medical practice this has been shown to be feasible (Poliak, 1985). In psychiatry this also is possible in some areas. Thus, where psychotropic medications are prescribed, anticipated cross-reactions with miscellaneous drugs the patients habitually take for existing physical ailments—as well as tabulation of dosage, complications, and side effects—can be expeditiously accessed. Sophisticated software programs oriented around the DSM-3 classification system may be helpful in diagnosis and thus in the selection of appropriate treatment. As a diagnostic helpmate, computers are acceptable to patients and do at least as

good a job as clinicians and at lower cost (Sawyer, 1966; Scharfstein, et al., 1980). A number of programs are also available for diagnostic psychological testing. Automated testing with the Minnesota Multiphasic Personality Inventory (MMPI), Beck Depression Scale, and Strong Campbell Interest Inventory permits rapid administration and scoring with as good patient compliance as with traditionally administered tests. Moreover, the level of accuracy is relatively high in culturally diverse clinical settings (Ensel, 1980; Labeck et al. 1983; Green, 1982; Colligan and Offord, 1985). The application of a computerized information system to the psychotherapeutic care of individual patients and families is obviously more complicated. Psychiatric problems involve much more complex data than do medical conditions. For example, in nephrology the data base consists of limited physical signs, symptoms, laboratory findings and relevant therapeutic information. In any psychiatric problem, however, there is a host of interrelated biochemical, neurophysiological, intrapsychic, interpersonal, social, and philosophic systems, each of which is tremendously complex and influences treatment progress.

Computers have been programmed to give clinicians reliable information about such variables as symptom change, work and social adjustment, sexual functioning, and risk of suicide (Greist et at., 1973).

Computer interviewing is efficient, reliable, accurate, and highly acceptable to most patients. Up to 85 percent of markedly disturbed patients may be interviewed by computers at the time of admission to a hospital (Erdman et al., 1981). A number of programs lend themselves to consultation, performing as effectively as clinicians in making clinical decisions. For example, Greist et al. (1973) have evaluated an online computer program that makes predictions about suicide risks that are more accurate than those of clinicians. A number of computer software programs have been designed to meet the needs of handicapped people. Thus successes have been secured in cerebral palsy, learning disabilities, and hyperactive and autistic children to improve attention and performance. Computers are increasingly being used in psychoeducation to dispense information about topics such as birth control and sex, and it is often easier and less embarrassing for patients to learn via computer rather than a human lecturer. If therapists

are looking for silent, non-arguing cotherapists, they may find it in computer programs such as BARRY which engages patients in dialogue; this can be of help in monitoring the depth of depression and adherence to the medication schedule. Computers can be programmed to help interview patients regarding substance abuse (alcohol, tobacco, drugs) in a relatively relaxed atmosphere.

By interacting with the computer, clinicians can obtain or substantiate DSM-III diagnoses with a high degree of reliability. Facilitating this is the software program "Psychiatric Diagnostic Assistance." Helpful also in making clinical decisions are such programs as MYCIN, CADUCEUS, AND PUFF. A rapid screening for most mental disorders is now possible (Carr et al., 1981; Fischer, 1974). Attitudes, beliefs, and intimate important bits of information may be revealed by patients to the computer in many cases more readily than to a human interviewer (Greist and Klein, 1981) which is an important aid in treatment planning. Suggested treatment programs already exist in relation to agoraphobia, obsessive-compulsive neurosis, and depression, and more are being developed. Computerized information regarding new psychotropic drugs, changes in administration of existing medications, and side effects and their management can be a valuable aid in pharmacotherapy. The best known data bases for drug information (interactions, contraindications, warnings) are Medline, International Pharmaceutical Abstracts, and the University of Wisconsin Lithium Information Center. Other uses for computers are the updating of available pamphlets, books, and other materials for bibliotherapy and psychoeducation; information regarding social, recreational, and therapeutic resources in the community; and location of self-help groups. Computer-elicited case histories have been shown to be more than 90 percent accurate and reveal data of importance in the management of patients, some of which were not divulged to human interviewers (Carr et al., 1983; Greist et al., 1973, 1977; Lang et at., 1970).

Experiments with computers to enhance psychotherapeutic operations have resulted in the development of a number of interactive programs. Computer mediated psychotherapy systems are to an extent organized around the symbolization of the computer as another human being with which one can

interact. People often do this with animals who as pets substitutively serve an important but limited interpersonal function. The computer can become much more anthropomorphized than an animal when it is programmed to communicate in language the person can understand. The earliest example of a computer therapist is provided by ELIZA, a program devised by Weizenbaum (1966, 1976) a Massachusetts Institute of Technology computer scientist, which simulated a Rogerian non-directive therapist (Colby, et al. 1966). If we observe subjects "talking" to ELIZA we can see how easily transferential phenomena can be elicited, and we may speculate about the usefulness of computers as therapeutic instruments for cognitive and value change above and beyond their proven educational value (DeMuth, 1982).

Attempts have been made to do this (Colby, 1980; Rokeach, 1975; Cole et al., 1976; Friedman, 1980; Spero, 1978; Hedlund, 1979; Selmi et al., 1982; Trappi, 1981; Wagman, 1980; Wegman and Kerber, 1980; and Zarr, 1984). The consensus of opinion by these authors is that despite the threat of dehumanization, there will be important future uses for the computer as an adjunct in organized psychotherapy programs. Caution nevertheless dictates not to compare the brainpower and skill of a computer to that of well-trained and empathic therapists. Granted that some computer behavioral, cognitive, and relaxation programs may be conveniently and economically administered, computers have not yet reached the stage where they have made psychotherapists obsolete.

Computer fantasy games, fashioned after the popular computerized games for youngsters, Dungeons and Dragons, and Adventure (Adams, 1980; Clarke and Schoech, 1984) have been developed for child and adolescent patients which allow them to control the actions of characters on the display monitor with whom the patients identify (Allen, 1984). Children may even construct the main characters in the game—identifying them with the angels and monsters in their own inner world—give them names, and design their dodges and achievements. A tremendous amount of material becomes available to the therapist through such modern play therapy and this can provide an opportunity to question, encourage,

and support the children in working through fantasies, needs, and defenses. The responses of the children may be saved on disk for later replay, to procure associations, to invite more reality oriented revisions, and to improve decision making.

The program ELIZA and the interactive fantasy games devised for children with emotional problems open up the vast possibilities of the computer as a way of influencing behavior that can serve as an adjunct to psychotherapy. As has been mentioned before, the computer can never replace the professional who provides the warmth and empathy of a skilled human relationship (Spero, 1978) but in some ways it can do selective tasks better—for example, educational reinforcement. Required is appropriate software prepared by creative innovators. Some leads in this direction have been provided by a number of experimenters. Reitman (1985) has described a self-help program for impotence oriented around cognitive restructuring that has produced excellent results. Thirty-eight other programs of psychoeducation, sex education for children, sex therapy for varied sexual problems, and therapy for couples' problems are being developed. Lang et al. (1970) have developed a program for desensitization of phobias that has produced results equal to that of a clinician. Schneider (1984) has devised a four-week "Quit-by-Mail" antismoking program with clients treated at home who mail to the author's clinic diary sheets of smoking control progress and responses to smoking questionnaires. These data are entered into a computer, and a personalized reply, prepared by the computer, is mailed back to clients. Initial successes have been encouraging.

Because verbal psychoeducation is an important aspect of a well-organized psychotherapy schema, it has been more and more incorporated into some therapeutic designs. It is, however, costly and inefficient when it is employed by therapists themselves especially in short-term psychotherapy where time is limited. Bibliotherapy has been of some use in providing supplementary readings, but often these cover a subject too diffusely and do not zero in on the specific problems of patients. It is posited that improved computer methods will revolutionize education with replacement of present-day teaching technologies by

computer systems that permit active personalized conversational dialogue between student and instrument, thereby eliminating the highly inefficient lecture techniques that reduce the student to an immobilized, passive, and resistant receiving station. An actual attempt in this direction, the teaching of interviewing by employing a suitably programmed computer to simulate an initial psychiatric interview, has met with some success (Bellman et al., 1963, 1966). Here trainees assume the role of therapists, and the computer, properly programmed, replies as patients would respond. The computer may be programmed to represent a range of problems and patients. Jaffe (1964) has described specific techniques for interview analysis through the aid of computers with special methods of coding interpersonal phenomena; such computers have potential research applications. Wedding (1984) has developed a technique of mailing letters to patients after the third or fourth session that reiterate and elaborate many of the points brought out in therapy—occasionally even anticipating points to be made in the future. A personalized letter typed on the computer is merged with psychoeducational data and specific instructions relevant to the problems of the patient avoiding irrelevant and counterproductive information. The planning of vocational and educational counseling can be vastly enhanced through the use of a computer in an automated "Educational and Vocational Guidance System" (Murray, 1984). A modem provides a telecommunications link between the computer and a data base, such as the "Guidance Information System" of TSC, a Houghton Mifflin Company. The advantages of computer-assisted instruction for patients over written materials and verbal educational methods have repeatedly been demonstrated.

The interactional aspects of computer instruction permit learners to proceed at their own pace, minimizing the transference reactions common in interviewing that may interfere with learning, getting immediate feedback to data provided by the computer, allowing for greater flexibility in learning, and providing great stores of relevant information. A tremendous amount of literature has accumulated detailing the advantages and drawbacks of computer-assisted information systems (Flynn and Kuczeruk (1984), Misselt (1980), Schoech (1982).

Microcomputers are being used in remedial training for correction of memory, perception, concept formation, and problem-solving deficits resulting from brain impairment (Kurlychek and Gland, 1984). Rehabilitation professionals are also employing computers to assist their work with handicapped learning-disabled children and adults. Patients who have suffered a stroke may be asked to acquire and use an inexpensive computer in their homes for cognitive rehabilitation (Brady, 1984). Programs are available to enhance attention, initiation/inhibition skills, cognitive discrimination, and differential responses.

These examples of computer use in psychotherapy merely provide an inkling of what the future has in store for this remarkable instrument. Zarr (1984) has pointed out the need for enthusiasm and belief in computers' effectiveness as a requirement in computer-mediated psychotherapy. He also believes that the best uses are in brief and focused therapy, especially of a cognitive behavioral type. Excellent accounts of future trends in uses of computers in mental health may be found in the books by M. D. Schwartz (1984) and Crawford et al. (1980).

The optimistic reports are to some degree offset by some emerging problems. For example, attempts made to develop checklists of symptoms and levels of function to enhance psychiatric record keeping have been thwarted by both technical difficulties and resistance by clinicians who find it difficult to accept computers. The old hardware problems that involved a batchmode use of mainframe systems with difficult-to-manage punched cards have more or less been eliminated by the use of interactive mainframe and microcomputer systems. A number of problems have not yet been resolved, however, such as the programming of computers to simulate clinicians' summaries of input data, or to make inferences about diagnosis, prognosis, and treatment. What appears essential is refinement of the data that are most suitable for psychiatric summary statements.

Prevailing complaints are that the need to adhere to a preset and rigid reporting system that requires the skills of a human clinician cannot be subtly managed by a computer. Moreover, because the variables of human behavior are so complex and diverse, the computer reports to date have failed to differentiate

patients who present even dissimilar clinical pictures. Sometimes a failure occurs in entering key pieces of information, and this results in wrong diagnoses. Gradually, greater sophistication is entering computer usage, but there still remain the difficulties of clinical compliance and acceptance.

Among the reasons computers do not enjoy greater popularity among clinicians than they do are the difficulties inherent in mastering them. Not only must users learn a new language, acquire typing skills, and technical know-how but also plow through complicated reading. Many instructional manuals are not monuments of conceptual clarity or good writing. It takes a great deal of time and patience to master operations that are more complex than simple word processing. Learning to develop new computer programs is difficult, but if interest is there are and time of no essence, the effort can be rewarding. Examples of such use is provided in an article by Klepac (1984). The complexity of the data elicited in psychotherapy makes it difficult to organize data for purposes of computerization, although some preliminary attempts have been made toward providing greater regularity in this direction. Mergenthaler (1985), for example, describes an attempt to integrate information technology following guidelines of fundamental research in psychoanalysis.

Therapists first entering the world of computers may be bewildered by the vast variety of hardware equipment and software programs available. It is best in purchasing a computer to deal with a reliable agency locally to which a machine may be returned for repair or adjustment if necessary. The most popular computers are IBM instruments, or IBM-compatible clones that are less expensive; in the latter case, purchasers must be sure that repair facilities will not be too difficult to find. Apple (including Macintosh) computers are excellent, but buyers should ascertain beforehand that any software purchased is suitable for these machines. If possible, a computer with at least 640 K of RAM (memory) and a hard disk should be purchased, but 256 K of RAM and two drives for floppy disks may be adequate for most purposes. A monochrome monitor is eminently suitable, but some therapists prefer a color monitor, even though this is more expensive, because color makes some interactive programs more interesting. A good

dot-matrix printer will be needed for speed and, if desired, near-letter-quality printing. A stand to support the printer and covers for the fanfold paper rounds out the basic equipment. Accessory purchases can include a modem (with at least 1200-band speed) for accessing outside data bases and equipment for use with compact disks.

Elaborations of computer programs are proceeding at an enormous pace, covering the entire field of practitioners', interests. Thus software programs, such as psQ "Practice Partner" (psyQ systems, 1730 Rhode Island Ave., N. W., Washington, D.C. 20086) and "Insight Billing Software" (Applied Innovations, Inc., South Kingstown Office Park, Wakefield, RI 02879) are sold with the object of managing the paperwork requirements of mental health practitioners in relation to preparation of billings, daily schedules, accounts receivable, insurance forms, and special reports.

Some programs exist that prepare a DSM-III diagnosis as required by third-party payers. In the "P.D.M. 2000 computerized Diagnostic Interview Schedule" (p.r.n. systems, 222 N. Midvale Blvd., Suite 1, Madison, WI 53705) patients are interviewed on a computer, the data are processed, and a "clear, concise, and documented written report of suggested DSM-III diagnoses" is offered. A "computerized textbook" is available in "Decision Base," which diagnoses all DSM-III disorders, takes histories, and programs other functions (P.W. Long, M.D., II 1206-750 West Broadway, Vancouver, B.C., V5Z Canada). One program, MORTON, administers the Beck Depression Inventory for diagnostic purposes. Tests such as the MMPI are executed with a written narrative describing the personality dynamics and interpreting the scale scores. (Behaviordyne, Inc., 994 San Antonio Road, P.O. Box 10994, Palo Alto, CA 94303-0997; Applied Innovations, Inc., South Kingstown Office Park, Wakefield RI 02879). A computerized stress-inventory program generates a stress profile for diagnostic purposes and suggests changes (Preventive Measures, Inc., 1115 West Campus Road, Lawrence, KS 66044). A "Chronic Pain Battery" screens for psychopathology (Pain Resource Center, Inc., P.O. Box 2836, Durham, NC 27705). "Q Fast" converts questionnaires and surveys into interactive computer programs useful for practitioners

and researchers who administer tests, and "Psychostat" is a complete statistical package (Stat Soft, 2833 East 10th St. Suite 4, Tulsa, OK 74104).

The "Gordon Diagnostic System" administers game-like tasks for diagnostic and treatment recommendations for attention-deficit disorders and hyperactivity (Gordon Systems, P.O. Box 746, DeWitt, NY 13214). Software programs are being developed for automating test-report writing, statistical analysis of data, projective drawing tests, diagnostic screening batteries for children and adults, and many other purposes. A number of other microcomputer software programs are designed for initial evaluations, session summaries, treatment planning, termination and discharge, summaries, child and adolescent diagnostic screening, intelligence test interpretation, and Rorschach data summary and report (Psychologistics, Inc. P.O. Box 3896, Dept. A, Indialantic, FL 32903).

For therapists interested in research, a statistical analysis package is available (Walonick Associates, 6500 Nicolet Ave. S., Minneapolis, MN 55423). "PsycINFO" has prepared a compact disk (which will require special equipment) providing summaries of the world's literature in psychology from more than 1400 journals. For quick, convenient searches there is "PsycLIT" (The American Psychological Association, 1400 North Uhle Street, Arlington, VA 22201). The use of microcomputers to provide direct access to databases has increased markedly in the past few years. It is not unusual for clinicians to keep terminals in their offices and also in their homes. New user-friendly computer literature search systems are available from various sources. BRS/Saunders Colleague is a medical literature and information-retrieval service accessible 22 hours daily containing both bibliographic and full-text references. Some of the data bases are MEDLINE, Medical and Psychological Previews, Psyclnfo, Excerpta Medica, the full text of the American Journal of Psychiatry and also of the Comprehensive Textbook of Psychiatry, 4th edition. Colleague, another data base, can be menu driven or accessed by direct commands (BRS/Saunders, 555 East Lancaster Avenue, St. Davids, PA 19087.) KNOWLEDGE INDEX is DIALOG'S after-hours, simplified search service, available weekends and evenings. It is intended for the weekend user and the

at-home user. Its data bases include Mental Health Abstracts, MEDLINE, and PsycInfo (available through local DIALOG offices or DIALOG Information Services, Inc., 3460 Hillview Avenue, Palo Alto CA 94304). Health-sciences librarians can provide further information.

Some periodicals that may be of interest to therapists are (1) *Computers in Psychiatry/Psychology* (26 Trumbull Street, New Haven, CT 06511; quarterly, $40 a year), (2) *Computer Use in Social Science*, (CUSS Network, Graduate School of Social Work, University of Texas, Box 19129, Arlington, TX 76019; quarterly, $10 a year). Recommended books are (1) J. D. Lieff, *How to Buy a Personal Computer Without Anxiety*. Cambridge, Mass., Ballinger Publishing Co., 1980; (2) J. D. Lieff, *Computer Applications in Psychiatry*. Washington, DC, American Psychiatric Press, Inc., 1987; (3) M. D. Schwartz: *Using Computers in Clinical Practice*, New York, Haworth Press, 1984. To use telecommunications for accessing data bases, a subscription to systems such as "Source" or "Telenet" is recommended. Mental health software catalogues may be obtained from (1) American Association for Medical Systems (AAMSI, 1101 Connecticut Avenue N.W., Suite 700, Washington, DC 20036); (2) Psychological Software Specialists, 1776 Fowler, Suite P, Richland, WA 99352; (3) Computers in Psychiatry/Psychology 26 Trumbull Street, New Haven, Connecticut, 06511; and (4) National Health Information Clearinghouse, Dept. GGG, P.O. Box 1133, Washington, DC 20013. Recommended reports and articles are (1) M. D. Schwartz: "Resources for Computer Users." *Hospital & Community Psychiatry* 35:537-539, 1984; (2) J. L. Hedlund et al.: *Computers in Mental Health: A Review and Annotated Bibliography*. NIMH Clearinghouse, Room 1 SC-17, 5600 Fishers Lane, Rockville, MD 20857; (3) J. H. Johnson: Computer Technology and Methodology in Clinical Psychology. *Psychiatry and Behavior Medicine*, Vol. 13, No. 4, Aug. 1982; (4) *Applying Computers in Social Service and Mental Health Agencies: A Guide to Selecting, Equipment, Procedures, and Strategies*. Administration in Social Work, N.Y., Haworth Press, 1981.