14. LSD PSYCHOTHERAPY

The Use of LSD-Type Drugs in Psychotherapy: Progress and Promise

O. Lee McCabe, Ph.D.
Thomas E. Hanlon, Ph.D.

Throughout time and across cultures, man has used a variety of consciousness-altering techniques for social, religious, and therapeutic purposes. The use of psychoactive chemicals to effect personality change represents one of the most persistent of these practices. Although there have been numerous compounds enlisted in the service of this goal, the present report focuses on those agents classified variously as hallucinogenics, phantasticants, psychotomimetics, utopiates, psychedelics, etc. Differing from those psychotropic drugs that have a predominantly stimulating or depressing action, psychedelic drugs induce profound transformations in the experiencing of self and of the external environment, i.e., in the perception of time, space, and subject–object relationships.

The number of substances that can alter the sphere of human consciousness is large. One survey identified 174 species or varieties of higher (seed) plants, representing 116 genera and 50 families, as having such psychoactive potential.[33] Additionally, there are numerous fungi with psychotomimetic or euphoriant properties, as well as a growing pharmacopia of man-made psychedelic compounds. The most well known of the synthetic substances, lysergic acid diethylamide (LSD), is the

prototype of the drugs to be discussed in this report. In addition to LSD, some of the other psychedelic drugs that have been considered to be of potential psychotherapeutic importance have been psilocybin, mescaline, and a series of short-acting psychedelic amphetamines, e.g., dipropyltryptamine (DPT) and methylenedioxyamphetamine (MDA).

Although LSD-type drugs have yet to receive an imprimatur as scientifically approved adjuvants to psychotherapy, the persistent use of these substances for a variety of apparently adaptive purposes suggests that no compendium of psychotherapeutic techniques can be regarded as complete without considering the role these agents play in facilitating the therapeutic enterprise. The present report is therefore concerned with the application of these drugs to the treatment of psychiatric disorders, beginning with the pioneer studies of the 1950s and continuing through the investigations funded by the National Institute of Mental Health over the past decade. From these investigative experiences, an appraisal is made of the drugs' clinical efficacy and safety, and conclusions are drawn regarding their possible inclusion in the psychiatric armamentarium of the future.

EARLY HISTORY OF THE CLINICAL USE OF LSD-TYPE DRUGS

Although the effects of peyote (mescaline) attracted some early investigational interest, including studies by Ellis, [30,31] Klüver, [51] and Mitchell[70], and later studies by Denber[27], Huxley[42], and MacLay and Guttman[63], it was not until the discovery of LSD that research into drug-induced altered states of consciousness received real impetus. First synthesized by Stoll and Hofman in 1938, its psychological effects serendipitously discovered by the latter in 1943,[40] LSD has been the focus of more than 2000 scientific reports. Most of these studies date from the 1950s, when systematic clinical experimentation was initiated.

In doses as miniscule as 50 millionths of a gram (i.e., 50 μg), LSD can produce profound alterations in perceiving, thinking, and feeling. The potency of LSD is even more impressive when one considers that in spite of profound reactivity, only 10 percent of the total dose can be found in the central nervous system at any one time. Early studies in mice demonstrated that radioactively labeled LSD disappeared from the brain and blood within one hour. Later spectrophotofluorometric measurements on samples of human plasma resulted in a calculated half-life in man of 175 minutes.[23] These findings have led to the conceptualization of LSD as a chemical

catalyst that triggers a sequence of latent neuropsychological potentials taking either phenomenologically positive or negative form. Due to the occasional schizophrenic-like behavior (due in large measure to nonspecific influences) of the LSD recipient, LSD and similar compounds were seen as causing drug-induced psychoses, and, therefore, were assigned the pejorative label "psychotomimetics." The model psychosis hypothesis subsequently instigated feverish, but essentially futile, efforts to solve the enigma of naturally occurring psychosis.

The first reported therapeutic application of LSD was within a chemotherapeutic framework, i.e., administration of the drug without concomitant psychotherapeutic intervention. In his original work, Condrau used LSD as a specific antidepressant because of its putative euphorigenic properties.[24] Although he found that some depressed patients showed improvement, mood tended to return to baseline levels following LSD treatment. A similar study was carried out by Savage with essentially the same results; however, he speculated that the drug might be useful in facilitating psychotherapy.[82] Subsequent attempts to define the role of LSD in psychotherapy may be classified into two basic approaches, the "psycholytic" and the "psychedelic."

Psycholytic Psychotherapy: LSD-Type Drugs and Psychodynamics

BASIC THEORY AND PROCEDURAL VARIATIONS

Psycholytic psychotherapy may be described as a combination of a psychedelic drug and psychoanalytically oriented technique. Typically, this method involves using relatively small doses (25–100 μg) of LSD in weekly or biweekly sessions to expedite the development and employment of traditional phenomena of psychoanalysis such as abreaction, catharsis, activation of the unconscious, recall of repressed memories, induction and interpretation of symbolic images, etc. Within the psycholytic model there are numerous variations in technique. Some practitioners use the drug on an occasional basis as an adjunct to analysis. The drug is given only after a considerable period of psychotherapy when, as Buckman puts it, ". . . the patient is beyond the state of insisting on a magical and quick cure, and after he has begun to be able to tolerate a considerable degree of frustration or anxiety."[15] In this approach, the therapist is present during a major part of the session, using a short period for direct interpretation. Scheduling of successive sessions is determined individually, usually after the material

evoked during previous sessions is integrated. Other psycholytic analysts consider the content elicited under LSD as the most relevant material with which to deal in psychotherapy, superordinate to even the analysis of the transference.

The writings of psycholytic investigators also reveal differences in theoretical orientation within the psychoanalytic framework, each school of thought tending to find its concepts confirmed in the drug sessions. For example, Sandison et al., of the Jungian school, frequently saw in their therapeutic experiments with LSD, "archaic, impersonal images," as well as "great archetypes of the collective unconscious."[80] Similarly, Grof, a Rankian, inevitably observed a reliving of the birth trauma in patients undergoing LSD therapy.[36] Indeed, Grof considers treatment to be incomplete until the birth experience is relived. His position is well depicted in the following description:

> After a greater number (15—60) of sessions, all (subjects) . . . tended to a . . . uniform symptomatology in LSD sessions and . . . free intervals. This included: overwhelming, free-floating anxiety, deep depression, . . . guilt feelings, explosive aggression, . . . etc. The clinical condition of the patient was usually . . . precarious. . . . When LSD therapy was continued, the symptoms directly overgrew into the birth experience—relived in a brutal biological way. Unpleasant phenomena . . . were interspersed with ecstatic episodes and finally after fully overcoming the birth trauma, the transcendental character successively dominated the picture and a far-reaching improvement and reconstruction of personality occurred.[36]

Another variation in the psycholytic approach has been in the choice of drug. Psilocybin has been used psycholytically in Germany,[55, 57] Sweden,[46] Holland,[8, 9, 104] and Belgium.[4, 5] LSD has been used in Denmark and Norway,[7] Czechoslovakia,[36] and Great Britain.[59, 65, 80] In the United States, LSD psycholysis, or modifications thereof, were used predominantly by Abramson,[1] Chandler and Hartman,[17] and Eisner and Cohen.[29]

Some psycholytic therapists have also used additional pharmacological aids such as Ritalin, Librium, Dramamine, and various amphetamines to expedite psycholytic treatment. Ling and Buckman[59] felt that Ritalin (20–40 mg), administered one-half hour after LSD, attenuated the anxiety caused by the release of repressed material and recommended its regular use. This procedure was also recommended by Chandler and Hartman[17] and Eisner and Cohen.[29] Leuner used Ritalin and amphetamines experimentally and found them to be "useful in certain ways" but did not recommend their regular application.[56]

REPRESENTATIVE STUDIES

The first report in the literature of an LSD-type drug used as an aid to psychotherapy is that of Busch and Johnson[16] in 1950 describing the results of the psycholytic treatment of eight causes of "psychoneurosis." All patients reportedly had experiences that positively influenced the course of their illness. The revivification of childhood experiences was particularly noted. Two patients reportedly improved sufficiently for treatment to be discontinued. Unfortunately, no information was given of the specific techniques used, frequency of administration, or number of treatments.

In Hamburg, in 1955, Frederking found LSD to be an aid in the psychotherapy of 25 patients considered refractory to anlaysis.[35] In the same year, Katzenelbogan and Fang used LSD for narcosynthesis in 20 psychotic patients, most of whom were considered schizophrenic.[48] From Powich Hospital in England, Sandison published the results of his first 36 cases treated with LSD.[80] A two-year follow-up of 30 of these patients reported 19 improved. The next year Davies and Davies used LSD with 16 mental defectives.[26] Although the authors felt that LSD was useful in psychotherapy, they reported the drug to have no "lasting" effect. In 1957, Feld et al. reported a 100 percent improvement rate ($N=18$) for all patients treated except those with chronic brain damage.[34] In the same year, at a psychiatric day hospital, Martin found improvement in 45 of 50 chronic neurotics, 9 of whom relapsed after two years.[65] Sandison and Whitelaw reported on 94 patients receiving psychotherapy with LSD.[81] Forty-three had either completely recovered or were greatly improved; a total of 66 percent allegedly had received some benefit. Lewis and Sloane, summarizing their experiences with LSD at Maudsley Hospital, concluded that the drug was a definite aid in psychotherapy and made note of its helpfulness with obsessional patients.[58] Whitelaw presented a detailed case of fetishism treated successfully with LSD and psychotherapy.[106]

In succeeding years, thousands of patients were treated with LSD. The early studies of psycholytic therapy (as well as those of psychedelic therapy) indicated sufficient psychotherapeutic potential for LSD-type drugs to generate international conferences on the topic. These meetings were held in New York City in 1959,[1] in London in 1961,[25] on Long Island in 1965,[2] and in Washington, D.C. in 1966.[73] As an indication of the extent of the practice of psycholytic therapy, the participants in one of these conferences had treated a total of 1099 patients. At this particular conference, Peck reported on his series of 218 patients wherein "excellent" results were obtained in 140 (64 percent) and at least "good" results in 183 (84 percent).[76]

In 1967, Mascher published a comprehensive review of psycholytic therapy in which studies from 1953 to 1965 were summarized.[66] The survey was based on 42 papers from all over the world and involved a total population of 1603 patients. The diverse reports were compared by compiling treatment results in terms of Sandison and Whitelaw's[81] formulations of "very much improved," "slightly improved," or "not improved." Of the 1603 cases reported, 68 percent were listed as "particularly severe" or "chronic" cases; the remaining 32 percent were considered "severe." The mean size of the LSD dosages administered by the various teams was 52 μg. Three-quarters of the 28 teams reporting kept their average doses below 250 μg. The data indicated that treatment "success" was most frequently (62.5 percent of cases) associated with multiply psycholytic sessions (both individual and group). There were equivalent success rates (56 percent) in those cases($N=788$) treated either with a single psycholytic session after intensive presession therapy or with multiple psychoiytic therapy conducted within individual sessions. The least effective (40 percent success) psycholytic procedure was a group-sessions-only format. The data also indicated that anxiety neurotics were most responsive (up to a 70 percent success rate) and alcoholics and drug addicts were most refractory (31 percent) to this form of treatment. Although an evaluation study such as this is limited by interinvestigator variations in treatment approaches and criterion standards, the study does convey the scope of the clinical research conducted up to that time. For a variety of social and political reasons, research on psycholytic therapy (and on LSD-type drugs, in general) has waned, currently being conducted by only a few investigators, e.g., Arendson-Hein and Bastiaans in Belgium and Leuner in Germany.

Psychedelic Psychotherapy: LSD-Type Drugs and the "Peak" Experience

BASIC THEORY AND PROCEDURAL VARIATIONS

Theory development within the psychedelic model has been sketchy. Basically, it is an empirically derived approach anchored in the assumption that LSD-type drugs, administered in a specific context and in sufficiently high dosages, can produce a profound, emotional, ego-transcendent, and presumably "corrective" experience in an individual properly prepared for the drug reaction. Psychedelic theory does not eschew the therapeutic

relevance of the varied psychodynamic material which is the predominant focus of psycholytic drug sessions. However, the psychedelic model considers the transcendental experience to be the major fulcrum for permanent behavioral redirection. In nondrug contexts, this phenomenon has been referred to as a "peak,"[67] "immediate,"[101] "kairos,"[49] "cosmic,"[14] or "conversion"[43] experience. Frequently, the experience has been couched in religious terms (cf. "unio mystico," "samádhi," "moksha"), due largely to the fact that the insights derived therefrom often are perceived as noetic and ultimate, as answers to the fundamental questions of life with which the religions of the world have dealt. With the attainment of this state, the ego (the "I" or "me" who observes and experientially participates in the world of conventional reality) ceases to exist in its ordinary condition of separateness and selfhood. Instead, there is an experience of undifferentiated participation in a unified field which is perceived as the very ground of one's being and universe, beyond finite and temporal reality. The experience transcends the personal and mundane, thereby effecting a different perspective on old perceptions, attitudes, difficulties, etc. Human problems subsequently seem of low priority, or as totally illusory. The coping behaviors and reverberating emotions that were generated and maintained in the service of resolving personal difficulties are viewed as superfluous and are thereby rendered inoperative. The universe is viewed as if through a new medium. One becomes more aware of his relationship to the family of man, and all life forms are looked upon as participants in a collective journey of unfathomable but immense importance. Apparently, as a result of the unitive experience, even inanimate objects in the environment are regarded with a new affinity, for the individual may feel he has "participated with" these objects at a molecular, atomic, or otherwise common denominative level.

The question of the ultimate validity of such perceptions is best left to philosophers. The fact remains that for thousands of years, people have reported similar experiences—induced spontaneously or with various agents and maneuvers, e.g., plants, chemicals, fasting, breath control, meditation, prayer, etc.—and that in the wake of such experiences, dramatic changes in behavior have been observed to occur. In attempts to maximize the probability of positive changes resulting from the altered states of consciousness produced by LSD-type drugs, the psychedelic model of treatment evolved. Rather than being solely a function of drug effects, this model of treatment considers therapeutic behavioral change to be the reliable consequence of a spectrum of extradrug variables, including

the personalities of the patient and the therapist, the quality of preparation, and the emotional and physical atmosphere and surroundings—generally termed "set and setting." The concept of "set and setting," particularly as it engenders in the patient a sense of trust in his therapist and in the procedure, is viewed as the most crucial ingredient of successful therapeutic outcome.

In the more generally accepted paradigm, a phase of conventional psychotherapy precedes the drug session that is expressly focused on the patient's strengths and resources as well as on his conflicts, defenses, and dynamics. The preparatory sessions are aimed at creating a confident receptivity to the impending drug experience. Given a positive working relationship between therapist and patient, the drug-induced peak experience hopefully consolidates whatever therapeutic gains have been achieved and provides the foundation for altered perceptions of self and others.

REPRESENTATIVE STUDIES

One of the first clinical investigations to suggest that therapeutic benefit might attend ego-loss experiences was Hoffer and Osmond's LSD work with alcoholics in 1961,[39] which also marked the emergence of psychedelic therapy as a distinct treatment modality. Most of the early work with the psychedelic procedure focused on alcoholic patients, based on the idea that the experience might prove helpful in producing a condition resembling delirium tremens that would allow the patient to "hit bottom" earlier than he might do otherwise. However, the large doses of LSD used (200 gamma or more), pushed many of the subjects beyond the psychotomimetic experience into a conversion-like experience. Outcome data suggested that it was the ego-transcending experience, rather than the hypothesized aversive activity of LSD, that was subsequently associated with rehabilitation.

Hubbard, one of the pioneers of psychedelic therapy on this continent, treated a number of chronic alcoholics with a single large dose of LSD. All of the recipients seemed to benefit to some extent, a number to a degree that they themselves considered "miraculous."[75] Although quantified results are not available on Hubbard's large series of subjects, it is reported that he found the treatment to be so outstandingly successful that there was no question regarding its efficacy.[12] Subsequent research by the Canadians and others[19, 44, 64, 74, 94, 95] consisted of open trials in which the psychedelic use of LSD with alcoholics was found to be both safe and effective.

The first published account of the effects of the high-dose procedure with nonalcoholic patients was that of MacLean and co-workers.[64] These investigators claimed that in a series of 33 patients (diagnoses were personality trait disturbance and anxiety neurosis), over 90 percent were "much improved" or "improved" after a median follow-up period of nine months. Ball and Armstrong described high-dose LSD treatment of a small series of sexual deviates. In some of the cases, they reported "remarkable, long lasting remedial effects."[10] Claims of unusual therapeutic improvement following high-dosage LSD exposures in psychoneurotic patients have also come from the Mental Research Institute in Palo Alto, Calif.,[89] and the Carrier Clinic in New Jersey.[90]

Over several years, investigation of high-dose LSD therapy was pursued at the International Foundation for Advanced Study in Menlo Park, Calif. In a series of publications, consistently impressive results were claimed with patients diagnosed as psychoneurotic anxiety reaction, psychoneurotic depresssive reaction, immature personality, and adjustment reaction.[71, 84, 87, 88, 91]

Exemplary of the results of the psychedelic approach were those of Sherwood et al. involving 25 patients.[91] Some degree of "improvement" (objective criteria not specified) was observed in 84 percent of the cases, with total resolution of the presenting problem being effected in nearly half (12) of the cases. In general, changes were characterized as follows:

> Movement away from resistiveness and defensiveness toward an increasing sensitivity and openness to all experience, increasing awareness of . . . deeper needs, developing confidence in . . . [one's] own inner reactions as a trustworthy guide to behavior, and increasing ability to form new relationships. The most pronounced changes typically occur when the subject is able to move into the . . . psychedelic experience.[91]

Savage and co-workers reported on 77 cases who were given psychedelic therapy in an outpatient setting.[83] The single high-dose technique was employed, including intensive preparation and follow-up. Therapeutic effectiveness was determined by examining the results of psychological tests, clinical evaluations similar to those employed in studies of conventional psychotherapy, and a Behavior Change Interview. All measures indicated a "shift toward more 'ego-syntonic' behavior for most subjects."[83]

As with the psycholytic literature, there are only a few controlled studies on the effectiveness of the psychedelic approach, and all but one of these involved the treatment of alcoholics with LSD. The psychedelic

aspect of these studies generally consisted of high-dose administration; none involved the administration of LSD within the context of individual psychotherapy that included fairly intensive session preparation and subsequent integration of insight. Although for the most part evaluations were systematic and carefully implemented, it appears that the perfunctory procedures used by such studies often worked against the occurrence of those drug-related experiences considered to have the most beneficial impact in the course of an ongoing therapeutic process. In view of this limitation, it is not surprising that the bulk of the evidence reported was negative.[13, 18, 19, 32, 41, 93, 103]

One of the most systematic controlled studies yielding negative results was that of Ludwig and Levine, who found no post-treatment or follow-up differences between three LSD-treated groups of alcoholics and one group receiving milieu therapy alone.[62] Initially involving the random assignment of a total of 176 chronic alcoholic patients to "hypnodelic" therapy (LSD plus hypnosis and psychotherapy), "psychedelic" therapy (LSD plus psychotherapy), LSD alone, and routine milieu therapy, the study noted improvement in the majority of patients in all four treatment categories. In effect, LSD patients fared well according to psychometric and behavioral criteria, but so did milieu therapy patients—Ludwig and Levine rightfully considering this result illustrative of the need for controlled evaluations in assessing LSD effects. Furthermore, no relationship was found between profoundness of LSD reaction (as measured by alteration in consciousness) and final outcome. Although they saw little promise for the use of LSD in the treatment of chronic alcoholics on the basis of their results, the authors conceded that their use of LSD with psychotherapy did not fully reflect the psychedelic model as propounded by other investigators.

Three controlled studies involving alcoholics yielded what appeared to be short-term positive effects. Comparing a group of 28 LSD-treated alcoholics with a group of 34 receiving routine care in the same hospital setting, Cheek et al. found greater improvement at three months in the LSD group on measures of sobriety, work, and family adjustment.[18] There were no significant differences between the two groups, however, at 6- and 12-month follow-up. Essentially the same results were found by Hollister et al., who reported a significant difference between 29 LSD- and 23 dextroamphetamine-treated patients at two-month follow-up on a locally devised scale of drinking behavior.[41] Again, no significant difference between experimentals and controls was discernible at six months.

The third study was that of Bowen et al., who administered high-dose LSD (500 μg) in the context of a Human Relations Training Laboratory involving the teaching and practice of interpersonal skills in group settings.[13] Although finding no significant outcome differences at 12 months among their three groups (63 high-dose LSD patients, 22 low-dose patients, and 55 controls), the authors refer to earlier observed positive changes in many high-dose LSD patients. Psychometric pre- and post-testing of 41 of the LSD cases (mean interval 21 days) and 41 controls (mean interval 38 days) revealed significant differences in 4 of 36 measures favoring the LSD group.[97] Compared to controls,

> The lysergide treated group showed greater emotional stability, ego strength and ability to face reality in a calm, mature manner ($p < .01$), experienced a reduction in tension and frustration ($p < .05$), tended to describe themselves as more confident and outgoing in social relationships ($p < .05$), and endorsed fewer atypical MMPI statements (F scale; $p < .01$).[97]

In an extensive review of LSD treatment in alcoholism published in 1971, Abuzzahab and Anderson listed 5 controlled and 13 uncontrolled studies of variations of the psychedelic approach.[3] The only controlled psychedelic study in the literature on other than alcoholic patients was that of Ludwig and Levine,[61] who assigned 70 narcotic drug addicts to five brief treatment techniques variously employing LSD, psychotherapy, and hypnosis. An early version of the Psychiatric Evaluation Profile, a self-administered questionnaire measuring therapeutic change, served as the major evaluation instrument. Results at both two weeks and two months favored "hypnodelic" therapy, a unique combination of all three forms of treatment, over each form used individually and over the utilization of LSD plus psychotherapy.

Compared to the psycholytic approach, the psychedelic use of LSD-type compounds had certain methodological advantages that allowed it to meet stringent regulatory and evaluative criteria. Since only a single dose was employed and since it was essentially a time-limited procedure, it was ideal for controlled evaluative studies. The fact that a single treatment of LSD was employed was also a safety factor that enhanced its attractiveness. However, as we have indicated above, the controlled studies that were undertaken utilized a variety of treatment techniques that invariably did not adhere to what might be regarded as the ideal psychedelic therapy paradigm. Hollister et al.,[41] Johnson,[45] and Smart et al.,[93] for example, utilized a treatment method best described as

psychedelic chemotherapy, in which the major emphasis was on the administration of the drug itself. The amount of psychotherapy in the preparation and post-treatment phases was minimal. Adding hypnotic induction to the process, Ludwig and Levine also utilized a limited preparation period and abbreviated drug sessions.[62]

RECENT PROGRESS IN THE CLINICAL USE OF LSD-TYPE DRUGS

The LSD Studies Funded by the National Institute of Mental Health

In an attempt to remedy some of the shortcomings of previous investigations, the systematic exploration of psychedelic therapy has been underway at Spring Grove Hospital since 1963, and more recently at the Maryland Psychiatric Research Center in Baltimore, Md. These studies have been funded by grants from the National Institute of Mental Health, Department of Health, Education, and Welfare. The therapeutic procedures used in this research were distilled over many years from the cumulative experience of the various staff members involved. The basic treatment process consisted of three interrelated phases: (1) a series of drug-free interviews in which rapport was established and the subject was prepared for the psychedelic drug session; (2) the psychedelic drug session itself; and (3) several subsequent interviews for the integration of the drug session experiences.

The preparation usually lasted an average of 12 hours, extended over a period of three to four weeks. The drug session was undertaken only after the therapist had gained intimate knowledge of the patient's developmental history, dynamics, defenses, and difficulties, close rapport had been established, and the patient had been specifically and comprehensively prepared for the procedure. The objective of the high-dose session was the production of a peak, or transcendental, experience. The underlying process was regarded as corrective and remedial. It was designed to program and guide the evolving episodes of experience so as to achieve meaningful catharsis, inhibition of anxiety, conflict resolution, emotionally validated insight, attitude redirection, elevated self-esteem, and deepened philosophical perspective.

The experimental drug sessions themselves were carried out in a special treatment suite furnished as a comfortable living room, with sofa, easy chair, rugs, drapes, pictures, flowers, and high-fidelity music

equipment. The patient's therapist and a psychiatric nurse were in constant attendance throughout the period of drug action. For most of the session, the patient reclined on the sofa and wore eyeshades and stereophonic earphones, alternately listening to carefully selected classical music and interacting with the therapist.

Initially, the program of psychedelic research involved the use of LSD exclusively. Successive patient samples in a series of LSD studies covering a five-year period were comprised of alcoholics, neurotics, terminal cancer patients, and narcotic addicts. More recent research has employed other psychedelic compounds with essentially the same type of subjects as those administered LSD. Except for one controlled study of the use of DPT with hospitalized alcoholics, these have been open clinical assessments involving smaller size samples. Summarized descriptive information and outcome results of these and the earlier LSD studies are presented in Table 14-1.

LSD THERAPY OF ALCOHOLISM

The first Spring Grove LSD project was initiated in 1963. In this pilot research, 69 hospitalized alcoholics were treated with dosages of 200–900 μg in open clinical trials replicating the psychedelic method utilized by the Canadian investigators. Pre- and post-treatment Minnesota Multiphasic Personality Inventory (MMPI)[38] results revealed more immediate changes to include marked reductions in the Depression (D) and Psychasthenia (Pt) scales, the latter a measure of rumination or preoccupation with unproductive distraught thought content. At a six-month follow-up point, 23 (exactly one-third) of the patients had maintained complete abstinence from alcohol during the intervening period.[53]

Following the pilot work, which indicated that LSD was safe and at least as effective as previous interventions, a double-blind controlled study of the effectiveness of LSD in the treatment of hospitalized alcoholics was undertaken at Spring Grove.[52] In this study, 135 patients were randomly assigned to either high-dose (450 μg) or low-dose (50 μg) LSD treatment. A comprehensive psychological test battery was administered prior to acceptance into the program and one week after the LSD session. Follow-up assessments were obtained at 6, 12, and 18 months.

Psychological tests administered one week following the drug session indicated a significant improvement in both treatment groups of the study. Ratings of adjustment made by an independent team of social workers on follow-up samples revealed that 44 percent of the high-dose group were considered "essentially rehabilitated" at six months, as opposed to 25

TABLE 14-1
Summary of Spring Grove Hospital, Md. Psychiatric Research Center Studies of Psychedelic Psychotherapy

Investigators	Treatment	Year	Sample Size	Population	Dosage Range (μg)	Frequency of Drug Sessions	Evaluation Point (mo)	Improvement* (%)
Kurland et al.[52]	Low-dose LSD	1971	40	Alcoholics	50	Once	6	25
	High-dose LSD		64		450	Once	6	44
Richards et al.[78]	High-dose LSD	1972	31	Terminal cancer patients	200–500	Once	Post-treatment	71
Savage & McCabe[85]	High-dose LSD	1973	37	Heroin addicts	200–500	Once	12	33 abstinent
	Routine care		37		Control	None	12	5 abstinent
Savage et al.[86]	Low-dose LSD	1973	31	Neurotics	50	Once	6	45
	High-dose LSD		31		350	Once	6	52
	Psychotherapy		27		Control	None	6	26
Grof et al.[37]	H/L-dose DPT	1973	47	Alcoholics	15–150	Multiple†	6	47
Richards et al.[79]	High-dose DPT	1976	30	Terminal cancer patients	75–127.5	Once	Post-treatment	‡
Rhead et al.[77]	H/L-dose DPT	1976	32	Alcoholics	15–165	Multiple†	6	44
	Psychotherapy		26		Control	None	6	50
	Routine care		29		Control	None	6	38

*For alcoholic populations, percentages given are for those considered "essentially rehabilitated."
†Including one high-dose session, i.e., the administration of at least 60 mg of DPT.
‡Global improvement data unavailable.

percent of the low-dose group. Rehabilitation rates in terms of drinking behavior for this time period were found to be 53 percent versus 33 percent, respectively, a difference significant at the .05 level. No differential treatment effects were found for the remaining follow-up periods.

The fact that the low-dose group did as well as it did was considered reflective of both the intensive preparation and the actual administration of LSD. Many of the 50-μg sessions involved "considerable abreaction and catharsis of psychodynamically charged material."[52] It was also noted that at the 18-month assessment, psychedelic psychotherapy had been successful in helping over half of the alcoholics treated in the program (including both high- and low-dose patients), as opposed to a 12 percent improvement rate for a comparable group of alcoholics previously treated with conventional methods in the same facility.

LSD THERAPY OF PSYCHONEUROSIS AND BORDERLINE CONDITIONS

The overall rate of recovery for the sample of alcoholics in the ongoing controlled study was considered sufficiently encouraging to prompt exploration of the value of psychedelic psychotherapy in the treatment of the hospitalized neurotic patient.[68, 69, 86] In this double-blind controlled study, 96 patients, most of whom were diagnosed psychoneurotic disorder, depressive reaction, were randomly assigned to high-dose LSD ($N=31$), low-dose LSD ($N=32$), and conventional treatment ($N=33$). A battery of tests, including measures of intelligence and organicity, personality and behavioral inventories, and projective techniques, were administered prior to treatment and approximately seven weeks later, which was generally one week after the LSD session. As before, follow-up assessments of adjustment were conducted at 6, 12, and 18 months.

Analysis of short-term effects revealed that all three patient subgroups showed significant improvement immediately after treatment on most of the criterion measures employed.[69] Differential treatment effects in terms of means occurred in 19 of 50 instances, all of which indicated the superiority of high-dose LSD over conventional treatment. Although usually of lower magnitude, low-dose LSD was found to be superior to conventional treatment in 11 instances. The comparative improvement noted was not only indicative of a greater reduction in overall symptomatology, but also of a greater increase in "self-actualized" functioning.

At the six-month follow-up point, all groups showed significant improvement across a number of test variables, representing a general reduction of pathology rather than a specific pattern of symptom change. Contrary to post-treatment findings, statistical analyses at this point revealed no significant differential effects. The meaningfulness of results on a few measures at 12 months favoring high-dose LSD over conventional treatment was considered attenuated by the possible unrepresentativeness of the follow-up sample, and results at 18 months were uniformly nondifferentiating.

LSD THERAPY OF PHYSICAL AND PSYCHOLOGICAL DISTRESS SECONDARY TO TERMINAL ILLNESS (CANCER)

In view of preliminary findings by Cohen[21] and Kast[47] on the promising use of LSD in cases of terminal cancer and successful experiences with a few pilot LSD-treated cases, LSD cancer research was initiated at the Spring Grove Research Department and continued at the Maryland Psychiatric Research Center, incorporating essentially the same investigative staff. The original work of what has now become an extended research program involved the treatment of 31 terminally ill cancer patients with LSD.[78] Consistent with the psychedelic approach, psychotherapeutic procedures included a high-dose, therapeutically guided LSD session within the context of short-term psychotherapy, and entailed intensive preparation and follow-up care. Patients were referred for treatment by the Oncology Service of the Sinai Hospital, Baltimore, Md. Selection criteria included the presence of anxiety, depression, and uncontrollable pain. In each case, pre- and post- (three days) LSD session ratings of physical–emotional status were made by physicians, nurses, family, LSD therapist, and an independent rater. Observations were also made of pre- and postsession narcotic drug use for the alleviation of pain.

Results of the study indicated that on a global measure of overall improvement incorporating the observations of multiple raters 9 patients (29 percent) showed "dramatic" improvement following psychedelic therapy, 13 patients (42 percent) were moderately improved, and 9 patients (29 percent) were essentially unchanged. For the entire sample of 31 patients, the mean daily dose of narcotic medication decreased, though not significantly.

LSD THERAPY OF NARCOTIC ADDICTION AND SOCIOPATHY

The results of the controlled study with hospitalized alcoholics led to an investigation of the efficacy of brief residential psychedelic therapy for chronic narcotic addicts.[85] In addition to daily urine monitoring for

narcotics, the treatment model incorporated a high-dose (200–500 μg) LSD administration at the completion of several weeks of preparatory psychotherapy. The effects of this treatment were compared with those of a concurrent procedure involving daily urine surveillance and weekly group therapy in an outpatient abstinence program.

In this partially controlled study, 73 volunteer addict inmates from Maryland correctional institutions were randomly assigned to treatment (LSD) and control (outpatient clinic) conditions. Members of the treatment group were admitted to the outpatient clinic immediately following psychedelic therapy. In effect, all of the subjects were treated identically except for the initial six-week period of residential treatment incorporating individual psychotherapy that included a high-dose LSD session. In addition, both groups were equivalent on all pretreatment demographic and psychometric variables, including severity of psychopathology and prognosis. Major outcome criteria were based on evaluative assessments of the treatment and control groups at selected points during the 12 months following discharge from the correctional institutions to the community-based program.

Comparative abstinence data throughout the year were found to be significantly in favor of the group treated with psychedelic therapy. Results indicated that 9 (25 percent) of 36 subjects in the treatment (experimental) group maintained total abstinence from narcotic drugs for at least one year versus 2 (5 percent) of 37 in the control group. After relapsing briefly, three additional LSD patients subsequently remained abstinent for the remainder of the year, bringing the number of those LSD-treated patients essentially abstinent during the period of one year to 12 (33 percent). Although there was a trend in favor of the treatment group, there were no statistically significant differences between the groups on global community adjustment measures.

THE SAFETY OF LSD THERAPY

The safety record established by the Baltimore LSD research team was exemplary. Of nearly 400 treated cases, only 2 patients experienced an adverse behavioral reaction: one in the alcoholic study and one in the psychoneurotic study. Both recovered uneventfully after conventional psychotherapy and neuroleptic medication. Although 15–20 percent of the patients treated in the local LSD program over the years fell within a "borderline psychotic" category, which at times posed special problems for the therapist, the majority nevertheless underwent the procedure successfully.

Although the specter of chromosomal damage due to LSD was raised several years ago,[22] subsequent investigations were either equivocal or contradictory.[11, 28, 60] A double-blind collaborative investigation involving Spring Grove and the cytogenetics laboratory at the National Institutes of Health, yielded negative results, no difference being found in the rate of chromosomal aberrations before and after administration of LSD to 37 individuals participating in the alcoholic and neurotic studies. A detailed report of this research has been published elsewhere.[100]

The relative safety with which LSD can be administered in a controlled, supervised medical setting was also illustrated in the results of a survey reported by Cohen.[20] In this report, Cohen presented the findings of a side effects and complications questionnaire completed by 44 investigators who had administered LSD to 5000 individuals on 25,000 occasions. The relative incidence of suicide was found to be .4 per 1000 for LSD patients versus a zero incidence for controls. Regarding psychotic reactions lasting more than 48 hours, respective incidences were 1.8 per 1000 LSD patients and .8 per 1000 controls. Considering the iatrogenic record of most therapeutic interventions in psychiatry, including placebos, these reported incidences were surprisingly low.

In the psychedelic drug sessions conducted by the Baltimore group, psychosomatic reactions such as headaches, tremors, nausea, palpitations, breathing difficulties, etc., were frequently encountered. They usually occurred early in the sessions and appeared to be related to emerging traumatic unconscious material and the consequent mobilization of defenses and resistance. In sessions involving cancer patients, there were, of course, additional physical problems relating to the patient's basic disease. Of 50 such patients, all but one tolerated the psychedelic drug sessions well in spite of physical debilitation caused by malignancy. One patient who was acutely terminal at the time of LSD administration lapsed into coma as the drug effects abated and died later that evening.

The DPT and MDA Studies

As the LSD research program progressed at the Maryland Psychiatric Research Center, some of the disadvantages of LSD as an adjunct to psychotherapy became increasingly apparent. The principal drawback was its long duration of action (8–12 hours), which made its use an expensive and often arduous undertaking. In addition, because LSD was active orally, the abuse potential of the drug was correspondingly high. Sensationalistic reports of the abuse that had occurred among the general

public were so widely publicized that potential patients often had preconceived notions regarding the drug that seriously hampered subject recruitment and treatment acceptance.

For the above reasons, local attention centered in 1970 on a new psychedelic compound, DPT, first investigated by Vourlekis et al.[105] The potential advantages of DPT were many. Although it produced the same range of altered states of consciousness found with LSD, this new agent had a substantially briefer duration of action (1½–2 hours in low dosage and 4–6 hours in high dosage), and, as opposed to the protracted undulating action of LSD, its effects terminated abruptly and completely. Another promising characteristic of DPT was that it was inactive orally, a fact that considerably diminished its abuse potential.

DPT THERAPY OF ALCOHOLISM: A PILOT STUDY

Szara's preliminary observations of the subjective effects of DPT[99] were encouraging enough to prompt pilot work with hospitalized alcoholics.[37] In this research, 51 patients were treated with a modified psychedelic therapy approach in which DPT was administered on multiple occasions in dosages ranging from 15 to 150 mg, with each case receiving at least one high dose (60 mg and above). Short-term DPT effects were determined by examining pre- and post-treatment scores on a comprehensive psychological test battery. Social history and global adjustment assessments were obtained on 47 (92 percent) of the patients at six-month follow-up.

As with LSD, results indicated "dramatic" short-term effects, with positive changes observed in a variety of measures of psychopathology and self-actualization. At six months, pretreatment to follow-up differences on the scales of interpersonal adjustment, abstinence, and global adjustment reached a high level of statistical significance. The number of patients considered "essentially rehabilitated" was 22 (47 percent) with regard to global adjustment and 25 (53 percent) with regard to abstinence. Eighteen patients (38 percent) had maintained complete abstinence for the entire follow-up period.

Undertaken at approximately the same time, a controlled study of the process effects of low-dose (15–30 mg) DPT versus placebo indicated that 1½–2-hour therapy sessions were differentially facilitated by the active drug.[98] On the basis of blind observations, DPT sessions were rated significantly higher than placebo sessions on recall of memories and experiences, emotional expressiveness, depth of self-exploration, psychodynamic resolution, and productivity.

DPT THERAPY OF PHYSICAL AND PSYCHOLOGICAL DISTRESS SECONDARY TO TERMINAL ILLNESS (CANCER)

The next application of DPT in the research program was the treatment of the terminally ill cancer patient.[79] Using essentially the same treatment approach as that with LSD, 30 patients were administered a single high dose (75–127.5 mg) of DPT in the context of psychedelic psychotherapy. Obtained pre- and post-treatment, criterion measures included the Mini-Mult[50] (a shortened version of the MMPI),[38] the Personality Orientation Inventory (POI); an index of self-actualization, or psychological maturity),[92] and independent ratings of "emotional conditions."

Results of the study indicated significant improvement in six of eight Mini-Mult clinical scales and in two primary scales and three of ten subscales of the POI. Significant improvement was also found in clinical ratings of depression and anxiety. Subsequent analysis of the data on the same sample plus four additional patients revealed a positive relationship between the experiencing of a peak reaction with DPT and favorable outcome.

DPT THERAPY OF ALCOHOLISM: A CONTROLLED STUDY

The most recent in the series of DPT studies was a controlled investigation of the comparative effectiveness of DPT-assisted psychedelic therapy, conventional psychotherapy, and routine hospital care in the treatment of chronic alcoholics.[77] Although pilot research conducted elsewhere by Faillace et al.[32] involving 12 chronic alcoholics had not been encouraging, local experiences were promising enough to prompt controlled investigation. The design of the study called for the administration of DPT in what was regarded as a modified psychedelic psychotherapy model, i.e., up to 35 hours of individual psychotherapy involving a maximum of six drug administrations, one of which consisted of a high dose (75–165 mg). Conventional treatment involved up to 35 hours of individual psychotherapy, during which guided affective imagery was occasionally employed. Criteria of effectiveness were derived from a comprehensive psychological test battery, yielding 41 measures of either positive or negative functioning, which was administered pre- and post-treatment. A social history questionnaire was completed initially and at 6- and 12-month follow-up points.

During the course of the study, 175 patients were assigned to the three treatment groups, and of these 103 completed treatment. Of the criterion measures examined pre- and post-treatment, analysis of covariance results for only two measures favored DPT treatment over routine hospital care (the Self Regard scale of the POI and the Hypochondriasis (Hs) scale of the MMPI). There were no significant differences between DPT and conventional treatment for this time period. Significant follow-up results obtained at the 12-month point favoring conventional treatment over DPT-assisted psychotherapy and routine hospital care were considered equivocal because of differential compositions of the follow-up samples. It was, nevertheless, demonstrably clear that there were no detectable advantages in the use of DPT in terms of the follow-up data that were available.

MDA ADMINISTRATION TO PROFESSIONALS

Another agent that was considered as a possible alternative to LSD in drug-assisted psychotherapy was an analogue of mescaline, MDA. Evaluating MDA as a possible adjunct to psychotherapy, Naranjo and his associates[72] had administered the drug to volunteers in dosages ranging from 40 to 150 mg. Effects of the drug reached peak intensity within two hours and continued for approximately eight hours. Psychotropic effects reported by the subjects were intensification of feeling, a facilitation of insight, and heightened empathy.

The initial investigative probe at the Maryland Psychiatric Research Center consisted of the administration of 75 mg of MDA to professionals who had had previous experience with LSD.[102] Results indicated minimal loss in ability to attend, concentrate, and perform complex visual–motor tasks. Subjects had little difficulty communicating or shifting from exploring inner content to responding to external environment. Psychotropic effects were essentially the same as those reported by Naranjo et al., except that drug effects seemed to last longer, vis., 10–12 hours. The emotional states experienced were relaxation, calmness, and serenity. Although not overwhelming, less pleasing emotional states were at times reported by a few of the subjects, indicating a variability in response that was regarded as meriting future investigative attention. Generally, a state of enhanced well-being was reported. The state of consciousness facilitated by MDA appeared to make the acquisition of new insights an easier process. In addition, at the dosage level employed, MDA seemed to invite inner exploration.

MDA THERAPY OF OUTPATIENT PSYCHONEUROTICS

Positive experiences with the preliminary use of MDA led to the study of the use of this agent in the context of drug-assisted psychotherapy. Accordingly, an open clinical investigation was conducted of the response of ten neurotic outpatients (five male and five female) to the adjunctive use of MDA in an individual psychotherapy regimen lasting two to six months, depending on need, and including a maximum contact of 75 hours.[107] Two to four MDA sessions per patient were conducted, averaging eight hours in duration, with escalated doses ranging from 75 to 200 mg. Standardized psychiatric assessment devices were administered pre- and post-treatment and at six-month follow-up.

The clinical impressions obtained from the study were that MDA appeared to facilitate the improvement of patients involved in the psychotherapeutic program. Significant pre- versus post-treatment and pretreatment versus six-month reductions were noted in measures of depression, anxiety, and obsessive-compulsive traits. Notable positive changes were also made in self-actualization and in a sense of well-being. Mean global improvement at follow-up was found to be significant at the .01 level. Although no patient was judged to be worse, some responded better than others. MDA was well tolerated; no serious side effects or complications occurred.

Findings from the study indicated that patients could be gently introduced to altered states of consciousness by progressively increasing dosages of MDA, the approach being particularly helpful in allaying fears of loss of control. Use of the drug was found especially helpful in expediting the recovery of inner material usually excluded from awareness. On the basis of both process and outcome measures, the conclusion was drawn that MDA was uniquely suited to the facilitation of therapeutic insight without producing disruptive effects.

THE SAFETY OF DPT AND MDA THERAPIES

As with LSD administered in medically supervised sessions, the safety record of DPT was impressive. In both pilot and controlled studies, DPT has been locally administered to approximately 200 individuals on numerous occasions, including at least one high-dose administration, and serious sequelae at post-treatment evaluation or follow-up have yet to be encountered. The occasional occurrence of transient subjective discomfort during DPT sessions, related to the rapid onset of the drug, has been the only untoward reaction of note.

Regarding the safety of MDA, no contraindicating toxic reactions were reported when over 500 patients were administered daily dosages of MDA ranging from 10 to 300 mg for the treatment of depression and/or anorexia in numerous clinical trials conducted between 1949 and 1957.[96] In a series of self-experiments, Alles[6] noted an increase in blood pressure and pupillary dilation. Results of the Maryland Psychiatric Research Center staff study indicated an initial drop in systolic blood pressure followed by a significant rise over the pretreatment mean level accompanied by a slight but nonsignificant increase in pulse rate. As indicated above, the subsequent clinical trial involving 10 subjects and 35 MDA administrations ranging from 75 to 200 mg was conducted without incident.

PRESENT STATUS AND FUTURE DIRECTIONS OF LSD-TYPE DRUGS IN PSYCHOTHERAPY

The State of the Art

Administered in the context of psychotherapy, LSD-type drugs serve as catalysts to self-exploration and therapeutic interaction. They appear to be of particular benefit in the process of treating individuals resistant to more conventional psychotherapeutic approaches such as chronic neurotics, borderline psychotics, and character disorders, including alcoholics and narcotic addicts.

Although frequently accompanied by reactions that are unremarkable to the casual observer, experiences produced by LSD-type drugs are overwhelming to the recipient, often affecting the psyche in such compelling ways that subsequent perceptions and functioning are irrevocably altered. The therapeutic impact of the experience, however, tends to vary from individual to individual. Less variable is the influence of adequate preparation and sensitive session management, which appear to spell the difference between a tumult of kaleidoscopic sensations and a pregnantly meaningful, ameliorative experience.

Although such immediate effects as symptom alleviation and constructive changes in motivation and self-perception are easily recognized and validated, in most individuals long-term effects are more difficult to discern. Part of the problem lies in the unavailability of significant portions of treatment populations for follow-up study. Another weakness in final assessment of efficacy is the inadequacy of criterion

measures in documenting changes that are often existential in nature and, as such, not always reflected in situational adjustment or psychiatric status. Barring an exceptionally curative procedure, however, it is generally problematic to measure behavioral change in groups of individuals over extended periods and to attempt to relate results to a specific intervention. For a myriad of reasons, changes in behavioral patterns and life circumstances occur that tend to obfuscate the effects of any time-limited sequence of events, however dramatic or meaningful.

Extensive, systematic investigation at Spring Grove Hospital and the Maryland Psychiatric Research Center of the potential utility of psychedelic drugs in psychotherapy has demonstrated that these compounds have decided usefulness in expediting, facilitating, and enriching the process of psychotherapy in individuals with serious life adjustment problems. The limitations of the high-dose approach to psychedelic psychotherapy that relies on the reintegration powers of a single peak experience have become increasingly apparent. Findings to date indicate that such an experience, albeit conversion-like on occasion, is not the sine qua non of personality reintegration, nor does it ensure freedom from symptoms or permanence of behavioral change. Accordingly, the direction in which locally conceived psychedelic drug-assisted psychotherapy is moving is toward an integration of the psycholytic and psychedelic approaches, more recently termed, "extended psychedelic therapy." Positive drug experiences, which usually are undervalued in psycholysis (and psychoanalysis), are being elicited in this new approach with multiple high-dose (and, at times, low-dose) drug sessions, encompassing areas of traditional psychodynamics as well as perinatal and peak experiences and substantially contributing to the unfolding of meaningful phenomena in the therapeutic process. The controversial assumption of the psychedelic paradigm that enduring personality change can occur despite the bypassing of signficant psychodynamic conflict becomes a moot point with this approach. Recognizing the therapeutic potential of the peak experience (while at the same time relinquishing the near magical goal of the one-session model), this new therapeutic hybrid at once incorporates the strengths and eliminates the weaknesses of its respective components.

Psychotherapy utilizing psychedelic drug administration does not appear to have substantial public health import, mainly because it is a highly specialized technique requiring intensive training and implementation that precludes its use on a mass basis. Although it appears that LSD-type drugs increase an individual's receptivity to skillful

therapeutic intervention, they render one especially vulnerable to the hazards of poor therapy. If psychedelic drugs are to be meaningful adjuncts to psychotherapy, they will be so only insofar as therapists possess the necessary skills to use them.

Recommended Priorities for Future Research

The optimal use of LSD-type drugs in a clinical setting requires that future research address the following critical issues.

VARIABILITY OF RESPONSE

It is obvious that psychedelic therapy produces unique effects within each individual. Equally obvious is the considerable investigative effort that must be directed toward ascertaining the correlates of variations in response. From studies conducted so far, it appears that the benefits derived from the use of psychedelic agents depend to a large extent on the degree of trust in the therapeutic relationship and on the personality characteristics, receptivity, and current conflicts of the patient. The extent and permanence of observable behavior change appear at least partially dependent upon the reinforcement of new attitudes that is provided by both ongoing therapy and social interaction.

PREDICTION OF RESPONSE

Another avenue of research worth pursuing relates to the prediction of therapeutic outcome. Since psychedelic treatment represents a considerable investment of both time and resources, it is especially important to attempt to increase the probability of a favorable response through more selective screening procedures. With an accumulation of approximately 600 psychedelically treated cases (400 involving LSD and 200 DPT), investigators and therapists at the Maryland Psychiatric Research Center are presently in a position to isolate predispositional characteristics within diagnostic categories and apply these to the selection of future cases. Hopefully, this discrimination will result in an increase in future recovery rates.

SPECIFIC VERSUS NONSPECIFIC DRUG EFFECTS

Evaluating the effectiveness of psychedelic psychotherapy requires that the specific contribution of the psychedelic drugs per se be isolated and quantified. One of the principal problems faced by investigators in this

endeavor is the difficulty in teasing out the effects of the agents themselves from among the myriad of therapeutic influences operative in the psychedelic procedure. Two such influences are the intensity and fairly prolonged duration of the therapist–patient interaction—presumably remedial—involved in the approach. Another is the sympathetic attention of study evaluation teams, which are frequently made up of social workers and other health care professionals disposed to be of service to those in need. "Flight into health" also works against the differentially positive appraisal of any long-term therapeutic venture since the crises and intensities of reaction experienced by both drug- and placebo-treated cases tend to diminish with the passage of time. The unavailability of a suitable placebo that is neither transparent (if inactive) nor uniquely ameliorative (if active) is still another obstacle in the implementation of objective evaluation procedures.

EGO TRANSCENDENCE VERSUS OTHER DRUG EFFECTS

Future research efforts relating to psychedelic psychotherapy should involve assessment of the specific prognostic value of ego transcendence in relation to other therapeutically relevant variables. Although retrospective assessments of psychedelic reactivity appeared positively related to outcome in almost all of the studies in the presently reported program, there was by no means a one-to-one relationship between predictor and criterion. The post hoc nature of the observations permitted only tentative interpretations of the meaningfulness of the relationships that were found.

COMPARATIVE EFFICACY OF DRUGS

Future research should also be directed at determining the comparative effectiveness of the various psychedelic drugs that are presently available. MDA, for example, appears to have the advantage of facilitating psychotherapy at both low- and high-dose levels, allowing a more smoothly integrated psycholytic–psychedelic approach than has heretofore been possible. Psilocybin appears to be one of the more promising therapeutic agents among the psychedelics.[54] Both it and MDA need to be examined objectively, employing more familiar agents as points of reference. Following the lead of the psychopharmacology of antipsychotics, controlled comparative studies involving random assignment to one of several concurrently administered psychedelic agents should be undertaken in any comprehensive evaluation program.

PERMANENCE OF CHANGE

Provision for extended follow-up in LSD-type drug research is imperative. A healthy skepticism is revealed in the work of Bowen et al,[13] who observed "very real and dramatic" personality changes over the short term with the single-dose approach, but questioned whether these changes could be maintained without additional help in their integration and application to the problems of daily living. In effect, the likelihood of any single experience producing a radical, enduring modification in the personality functioning of most individuals with serious life adjustment problems is understandably remote. The evolution of the extended psychedelic therapy model, the utility of which requires further evaluation with respect to long-term follow-up, may be viewed as the experiential recognition of the limitations of the earlier psychedelic paradigm.

Obstacles to Future Research

In the United States, limitations in systematically assessing the role of LSD-type drugs in psychotherapy arise principally from shortages of research funds and specifically trained personnel at most local levels due to the lack of State and Federal support of programs and the general disinterest displayed by the pharmaceutical industry. In spite of recognition of the potential of LSD-type drugs by many individuals involved in clinical treatment and research in psychiatry, there is an obvious reluctance on the part of established investigators to become immersed in LSD-type drug research that is largely a reaction to societal misgivings and widespread public abuse of such drugs. For this and other similar reasons, including early ill-advised investigational programs having little or no mental health import, the more conservative behavioral scientists have tended to avoid what is generally regarded as a sensitive area of research. Mention has already been made of the limitations of the psycholytic and psychedelic procedures in terms of cost-effectiveness. Unfortunately, the prospect of narrow application of a procedure precludes both extensive systematic evaluation and broad-based support.

Many investigators concerned with assessing the impact of psychedelic drugs have been caught up in the phenomenological aspects of the overall drug experience and others have been primarily concerned with clinical effectiveness. The psychedelic procedure still remains a treatment in search of a theory. Although it is presently a procedure of demonstrated,

if limited, effectiveness and applicability, its underlying principles and mechanisms of action have yet to be elucidated in a way that will assure the more uniform attainment of maximum clinical benefit.

REFERENCES

1. Abramson, H. A. (Ed.). *The use of LSD in psychotherapy*. New York: Josiah Macy, Jr., 1960.
2. Abramson, H. A. (Ed.). *The use of LSD in psychotherapy and alcoholism*. New York: Bobbs-Merrill, 1967.
3. Abuzzahab, F. S., & Anderson, B. J. A review of LSD treatment in alcoholism. *International Pharmacopsychiatry*, 1971, *6*, 223–235.
4. Aguilar, M. T. La psilocybine: Perspectives d'utilisation en psychiatric clinique. *Acta Neuralogica et Psychiatrica Belgica*, 1963, *63*, 114.
5. Alhadeff, B. W. Aspects cliniques de l'emploi du delysid et de l'indocybine en psychiatrie. *Journal Semaine de Pharmacie*, 1963, *245*, 296.
6. Alles, G. A. *Neuropharmacology Transactions 4th Conference*. New York: Josiah Macey, Jr., 1957.
7. Alnaes, R., & Skang, O. E. Klinishe og psykopatologishe fenomener under psykoterapi ved hjelp an LSD kanelert med bickjemishe funn. *Tidskrift far Den Norske Laegeforening*, 1963, *23*, 1721.
8. Arendsen-Hein, G. W. LSD in the treatment of criminal psychopaths. In R. Crocket, R. Sandison, & A. Walk (Eds.), *Hallucinogenic drugs and their psychotherapeutic use*. Springfield, Ill.: Charles C Thomas, 1963, p. 101.
9. Arendsen-Hein, G. W. Treatment of the neurotic patient, resistant to the usual techniques of psychotherapy with special references to LSD. *Topic Problems of Psychotherapy*, 1963, *4*, 50–57.
10. Ball, J. R., & Armstrong, J. J. The use of LSD in the treatment of the sexual perversions. *Canadian Psychiatric Association Journal*, 1961, 6, 231.
11. Bender, L. & Sanker, D. V. S. Chromosomal damage not found in leukocytes of children treated with LSD-25. *Science*, 1968, *160*, 1343–1344.
12. Blewett, D. B., & Chwelos, N. *Handbook for the therapeutic use of lysergic acid diethylamide-25, individual and group procedures*. Unpublished manuscript, 1958.
13. Bowen, W. T., Soskin, R. A., & Chotlos, J. W. Lysergic acid diethylamide as a variable in the hospital treatment of alcoholism. *Journal of Nervous and Mental Diseases*, 1970, *150*, 111–118.
14. Bucke, R. M. *Cosmic consciousness: A study of the evolution of the human mind*. New York: University Books, 1961. (Original copyright, 1901 by Innes and Sons.)
15. Buckman, J. Theoretical aspects of LSD therapy. In H. A. Abramson (Ed.), *The use of LSD in psychotherapy and alcoholism*. New York: Bobbs-Merrill, 1967, pp. 87–97.
16. Busch, A. K., & Johnson, W. C. LSD as an aid in psychotherapy. *Diseases of the Nervous System*, 1950, *11*, 241.
17. Chandler, A. L., & Hartman, M. A. LSD-25 as a facilitating agent in psychotherapy. *Archives of General Psychiatry*, 1960, *2*, 286.
18. Cheek, F. E., Osmond, H., Sarett, M., & Albahary, R. S. Observations regarding the

use of LSD-25 in the treatment of alcoholism. *Journal of Psychopharmacology,* 1966, *1,* 56–74.

19. Chwelos, N., Blewett, D. B., Smith, D., & Hoffer, A. The use of LSD-25 in the treatment of chronic alcoholism. *Quarterly Journal of Studies on Alcohol,* 1959, *20,* 577–590.
20. Cohen, S. Lysergic acid diethylamide: Side effects and complications. *Journal of Nervous and Mental Diseases,* 1960, *130,* 30–40.
21. Cohen, S. LSD and the anguish of dying. *Harper's Magazine,* 1965, *231,* 69–88.
22. Cohen, S. Psychotherapy with LSD: Pro and con. In H. A. Abramson (Ed.), *The use of LSD in psychotherapy and alcoholism.* New York: Bobbs-Merrill, 1967.
23. Cohen, S. The hallucinogens. In W. G. Clark & J. del Guidice (Eds.), *Principles of psychopharmacology.* New York: Academic Press, 1970.
24. Condrau, G. Klinische Erfahrungen an Geisteskranken Mit Lysergsaure diathylamid. *Acta Psychiatria et Neurologia,* 1949, *24,* 9–32.
25. Crocket, R., Sandison, R. A., & Walk, A. (Eds.). *Hallucinogenic drugs and their psychotherapeutic use.* Springfield, Ill.: Charles C Thomas, 1963.
26. Davies, M. E. B., & Davies, T. S. Lysergic acid in mental deficiency *Lancet,* 1955, *269,* 1090.
27. Denber, H. C. B. Studies on mescaline, VII: The role of anxiety in the mescaline-induced state and its influence on the therapeutic results. *Journal of Nervous and Mental Diseases,* 1956, *124,* 74–77.
28. Egozcue, J., Irvin, S., & Maruffo, C. A. Chromosomal damage in LSD users. *Journal of the American Medical Association,* 1968, *204,* 214–218.
29. Eisner, B. G., & Cohen, S. Psychotherapy with lysergic acid diethylamide. *Journal of Nervous and Mental Diseases,* 1958, *127,* 528.
30. Ellis, H. Mescal, a new artificial paradise. *Annual Report of the Smithsonian Institution,* 1898, 437–548.
31. Ellis, H. Mescal, a study of a divine plant. *Popular Science Monthly,* 1902, *41,* 52–71.
32. Faillace, L. A., Vourlekis, A., & Szara, S. Hallucinogenic drugs in the treatment of alcoholism: A two-year follow-up. *Comprehensive Psychiatry,* 1970, *11,* 51–56.
33. Farnsworth, N. R. Psychotomimetic and related higher plants. *Journal of Psychedelic Drugs,* 1972, *5,* 67–74.
34. Feld, M., Goodman, J. R., & Guido, J. A. Clinical and laboratory observations on LSD-25. *Journal of Nervous and Mental Diseases,* 1958, *126,* 176–183.
35. Frederking, W. Intoxicant drugs (mescaline and lysergic acid diethylamide) in psychotherapy. *Journal of Nervous and Mental Diseases,* 1955, *121,* 263–2)6.
36. Grof, S. *Tentative theoretical framework for understanding dynamics of LSD psychotherapy.* Paper presented at the Psychotherapeutic Congress, Chicago, Ill., June 1966.
37. Grof, S., Soskin, R. A., Richards, W. A., & Kurland, A. A. DPT as an adjunct to psychotherapy of alcoholics. *International Pharmacopsychiatry,* 1973, *8,* 104–115.
38. Hathaway, S. R., & McKinley, J. C. *Minnesota Multiphasic Personality Inventory manual* (Rev. ed.). New York: Psychological Corporation, 1951.
39. Hoffer, A., & Osmond, H. A card sorting test helpful in making psychiatric diagnosis. *Journal of Neuropsychiatry,* 1961, *2,* 306–330.
40. Hofmann, A. Discovery of d-lysergic acid diethylamide—LSD. *Sandoz Excerpta,* 1955, *1,* 1.

41. Hollister, L. E., Shelton, J., & Krieger, G. A controlled comparison of lysergic acid diethylamide (LSD) and dextroamphetamine in alcoholics. *American Journal of Psychiatry,* 1969, *125,* 1352–1357.
42. Huxley, A. *The doors of perception.* New York: Harper Brothers, 1954.
43. James, W. *The varieties of religious experience.* Toronto: Random House, 1902.
44. Jensen, S. E. Treatment program for alcoholics in a mental hospital. *Quarterly Journal of Studies on Alcohol,* 1962, *23,* 315–320.
45. Johnson, F. G. LSD in the treatment of alcoholism. *American Journal of Psychiatry,* 1969, *126,* 481–487.
46. Kaij, L. LSD—behandlung an Neuroses. *Sartryck un Suenska Lakartidningen,* 1963, *60,* 60.
47. Kast, E. LSD and the dying patient. *Chicago Medical School Quarterly,* 1966, *26,* 80–87.
48. Katzenelbogen, S., & Fang, A. I. D. Narcosynthesis effects of sodium amytol, methedrine and LSD-25. *Diseases of the Nervous System,* 1953, *14,* 85.
49. Kelman, H. "Kairos" and the therapeutic process. *Journal of Existentialism,* 1960, *1,* 233–269.
50. Kincannon, J. C. Prediction of the standard MMPI scale scores from 71 items. *Journal of Consulting and Clinical Psychology,* 1968, *32,* 319–325.
51. Klüver, H. *Mescal: The "divine" plant and its psychological effects.* London: Paul, Trench, Trubner, 1928.
52. Kurland, A. A., Savage, C., Pahnke, W. N., Grof, S., & Olsson, J. E. LSD in the treatment of alcoholics. *Pharmakopsychiatrie NeuroPsychopharmakologie,* 1971, *4,* 83–94.
53. Kurland, A. A., Unger, S., Shaffer, J. W., & Savage, C. Psychedelic therapy utilizing LSD in the treatment of the alcoholic patient: A preliminary report. *American Journal of Psychiatry,* 1967, *123,* 1202–1209.
54. Leary, T., Metzner, R., Presnell, M., Weil, G., Schwitzgebel, R., & Kinne, S. A new behavior change program using psilocybin. *Psychotherapy: Theory, Research and Practice,* 1965, *2,* 2.
55. Leuner, H. *Die experimentelle Psychose.* Berlin: Springer-Verlag, 1962.
56. Leuner, H. Present state of psycholytic therapy and its possibilities. In Abramson, H. A. (Ed.), *The use of LSD in psychotherapy and alcoholism.* New York: Bobbs-Merrill, 1967, p. 108.
57. Leuner, H., & Halfeld, H. Psychotherapy under the influence of hallucinogens. *The Physician's Panorama,* 1964, *2,* 13–16.
58. Lewis, D. J., & Sloane, R. B. Therapy with lysergic acid diethylamide. *Journal of Clinical and Experimental Psychopathy,* 1958, *19,* 19–31.
59. Ling, T. M., & Buckman, J. *Lysergic acid (LSD-25) and Ritalin in the treatment of neurosis.* London: Lombarde Press, 1963.
60. Loughman, W. D., Sargent, T. W., & Israelstam, D. M. Leukocytes of humans exposed to lysergic acid diethylamide: Lack of chromosomal damage. *Science,* 1967, *158,* 508–510.
61. Ludwig, A. M., & Levine, J. A controlled comparison of five brief treatment techniques employing LSD, hypnosis and psychotherapy. *American Journal of Psychotherapy,* 1965, *19,* 417–435.
62. Ludwig, A. M., & Levine, J. *LSD and alcoholism.* Springfield, Ill.: Charles C Thomas, 1970.

63. Maclay, W. A., & Guttman, E. Mescaline hallucinations in artists. *Archives of Neurological Psychiatry,* 1945, *45,* 130–137.
64. MacLean, J. R., MacDonald, D. C., Byrne, U. P., & Hubbard, A. M. The use of LSD-25 in the treatment of alcoholism and other psychiatric problems. *Quarterly Journal of Studies on Alcohol,* 1961, *22,* 34–45.
65. Martin, J. H. LSD (lysergic acid diethylamide) treatment of chronic psychoneurotic patients under day-hospital conditions. *International Journal of Social Psychiatry,* 1957, *3,* 188–195.
66. Mascher, E. Psycholytic therapy: Statistics and indications. In H. Brill, J. O. Cole, P. Deniker, H. Hippius, & Bradley, P.B. (Eds.), *Neuro-Psychopharmacology.* Amsterdam: Excerpta Medica, 1967, pp. 441–444.
67. Maslow, A. H. Cognition of being in the peak experience. *Journal of Genetic Psychology,* 1959, *94,* 43–66.
68. McCabe, O. L. Psychedelic (LSD) psychotherapy: A case report. *Psychotherapy: Theory, Research and Practice,* 1974, *11,* 2–10.
69. McCabe, O. L., Savage, C., Kurland, A. A., & Unger, S. Psychedelic (LSD) therapy of neurotic disorders: Short term effects. *Journal of Psychedelic Drugs,* 1972, *5,* 18–28.
70. Mitchell, S. W. The effects of Anhalonium Lewinii (the mescal button). *British Medical Journal,* 1896, *2,* 1625–1629.
71. Mogar, R., Fadiman, J., & Savage, C. Personality change associated with psychedelic (LSD) therapy; a preliminary report. *Psychotherapy: Theory, Research and Practice,* 1964, *1,* 154–162.
72. Naranjo, C., Shulgin, A. T., & Sargent, T. Evaluation of 3, 4-methyl-enedioxy-amphetamine (MDA) as an adjunct to psychotherapy. *Medicina et Pharmacologia Experimentalis,* 1967, *17,* 359–364.
73. *Neuro-Psycho-Pharmacology, Proceedings of the Fifth International Congress of the Collegium Internationale Neuro-Psycho-Pharmacologium.* New York: Excerpta Medica (International Congress Series No. 129), 1967, p. 1114.
74. O'Reilly, P. O., & Reich, J. Lysergic acid and the alcoholic. *Diseases of the Nervous System,* 1962, *23,* 331–334.
75. Osmond, H. Psychopharmacology: The manipulation of the mind. In D. Solomon (Ed.), *LSD: The consciousness-expanding drug.* New York: G. B. Putnam's Sons, 1964, pp. 31–48.
76. Peck, T. T. J. The use of LSD in psychotherapy. In H. A. Abramson (Ed.), *The use of LSD in psychotherapy and alcoholism.* New York: Bobbs-Merrill, 1967.
77. Rhead, J. C., Soskin, R. A., Turek, I., Richards, W. A., Yensen, R., Kurland, A. A., & Ota, K. Y. Psychedelic drug (DPT)-assisted psychotherapy with alcoholics: A controlled study. *Quarterly Journal of Studies on Alcohol.* In press.
78. Richards, W. A., Grof, S., Goodman, L. E., & Kurland, A. A. LSD-assisted psychotherapy and the human encounter with death. *Journal of Transpersonal Psychiatry,* 1972, *4,* 121–150.
79. Richards, W. A., Rhead, J. C., Grof, S., Goodman, L. E., DiLeo, F., & Kurland, A. A. Dipropyltryptamine (DPT) as an adjunct in the counseling of cancer patients. In A. H. Kutscher, et al. (Eds.), *Psychopharmacologic and narcotic analgesic drugs in the care of the dying patient and the bereaved.* New York: Columbia University Press. In press.
80. Sandison, R. A., Spencer, A. M., & Whitelaw, J. D. A. The therapeutic value of

lysergic acid diethylamide in mental illness. *Journal of Mental Science,* 1954, *100,* 491–507.

81. Sandison, R. A., & Whitelaw, J. D. A. Further studies in the therapeutic value of lysergic acid diethylamide in mental illness. *Journal of Mental Science,* 1957, *103,* 332–343.
82. Savage, C. *Lysergic acid diethylamide* (Research Report, Project NM 001.056.06.02). Bethesda, Md.: Naval Medical Research Institute, NNMC, September 1951.
83. Savage, C., Fadiman, J., Mogar, R., & Allen, M. H. The effects of psychedelic (LSD) therapy on values, personality, and behavior. *International Journal of Neuropsychiatry,* 1966, *2,* 241–254.
84. Savage, C., Hughes, M. A., & Mogar, R. The effectiveness of psychedelic (LSD) therapy: A preliminary report. *The British Journal of Social Psychiatry,* 1967, *2,* 59–66.
85. Savage, C., & McCabe, O. L. Residential psychedelic (LSD) therapy for the narcotic addict: A controlled study. *Archives of General Psychiatry,* 1973, *28,* 808–814.
86. Savage, C., McCabe, O. L., Kurland, A. A., & Hanlon, T. E. LSD-assisted psychotherapy in the treatment of severe chronic neurosis. *Journal of Altered States of Consciousness,* 1973, *1,* 31–47.
87. Savage, C., Stolaroff, M. H., Harman, W., & Fadiman, J. Caveat! The psychedelic experience. *Journal of Neuropsychiatry,* 1963, *4,* 4–5.
88. Savage, C., Stolaroff, M. H., Savage, E., & Fadiman, J. Therapeutic effects of the LSD experience. *Psychological Reports,* 1964, *14,* 111–120.
89. Savage, C., Terrill, J., & Jackson, D. D. LSD, transcendence and the new beginning. *Journal of Nervous and Mental Disease,* 1962, *135,* 425–439.
90. Schmiege, G. R. The current status of LSD as a therapeutic tool. *Journal of the Medical Society of New Jersey,* 1963, *60,* 203–207.
91. Sherwood, J. N., Stolaroff, M. J., & Harman, W. W. The psychedelic experience: A new concept in psychotherapy. *Journal of Neuropsychiatry,* 1962, *4,* 69–80.
92. Shostrom, E. L. *Personal orientation inventory.* San Diego: Educational and Industrial Testing Service, 1963.
93. Smart, R. C., Storm, T., Baker, E. F., & Solursh, L. *Lysergic acid diethylamide (LSD) in the treatment of alcoholism.* Toronto: University of Toronto Press, 1969.
94. Smith, C. M. A new adjunct to the treatment of alcoholism: The hallucinogenic drugs. *Quarterly Journal of Studies on Alcohol,* 1958, *19,* 406–417.
95. Smith, C. M. Some reflections on the possible therapeutic effects of the hallucinogens. *Quarterly Journal of Studies on Alcohol,* 1959, *20,* 292–301.
96. Smith, Kline and French Laboratories. *Report on clinical evaluation of SKF #5 (amphedoxamine).* Philadelphia, 1957.
97. Soskin, R. A. Personality and attitude change after two alcoholism programs: Comparative contributions of lysergide and human relations training. *Quarterly Journal of Studies on Alcohol,* 1970, *31,* 920–931.
98. Soskin, R. A., Grof, S., & Richards, W. A. Low doses of dipropyltryptamine in psychotherapy. *Archives of General Psychiatry,* 1973, *28,* 817–821.
99. Szara, S. *Background information on the pharmacological and clinical data of N, N-dialkyltryptamine derivatives.* Unpublished manuscript, 1965.
100. Tjio, J., Pahnke, W. N., & Kurland, A. A. LSD and chromosomes: A controlled experiment. *Journal of the American Medical Association,* 1969, *210,* 849–856.
101. Touber, E. S. The role of immediate experience for dynamic psychiatry. In S. Arieti (Ed.), *American handbook of psychiatry.* New York: Basic Books, 1959.

102. Turek, I. S., Soskin, R. A., & Kurland, A. A. Methylenedioxyamphetamine (MDA) subjective states. *Journal of Psychedelic Drugs,* 1974, *6,* 7–14.
103. Van Dusen, W., Wilson, W., Miners, W., & Hook, H. Treatment of alcoholism with lysergide. *Quarterly Journal of Studies on Alcohol,* 1967, *28,* 295–304.
104. Van Rhijn, C. H. Significant hallucinations. In R. Crocket, R. Sandison, & A. Walk (Eds.), *Hallucinogenic drugs and their psychotherapeutic use.* Springfield, Ill.: Charles C Thomas, 1963, p. 137.
105. Vourlekis, A., Faillace, L., & Szara, S. Psychotherapy combined with psychodysleptic tryptamine derivatives. *Proceedings of the Fifth Collegium Internationale Neuropsychopharmacologium,* Washington, D.C., 1966.
106. Whitelaw, J. D. A. A case of fetishism treated with lysergic acid diethylamide. *Journal of Nervous and Mental Disease,* 1957, *129,* 573.
107. Yensen, R., DiLeo, F. B., Rhead, J. C., Richards, W. A., Soskin, R. A., Turek, I., & Kurland, A. A. MDA-assisted psychotherapy with neurotic outpatients—A pilot study. *Journal of Nervous and Mental Disease,* 1976, *163,* 233–245.