The Use of Psychedelic Drugs in the Treatment of Severely Disturbed Children: A Review

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INTRODUCTION

A previous review of the use of psychedelic agents with severely disturbed children (Mogar & Aldrich 1969) concluded that the "collective work reviewed . . . argues strongly for more extensive and systematic application of psychedelic drugs in the treatment of autistic schizophrenic children." This conclusion was based on an examination of seven studies and did not include all the work that had been published up to that time. A number of additional studies have been published since the previous review, including some follow-up studies pertaining to the issue of chromosome damage. To the best of the author's knowledge the present review is comprehensive with regard to the extant literature, and it is hoped that it appears at a time when the public furor over psychedelics has subsided enough to allow the pursuit of any research interests that hereby may be stimulated.

It should be noted that in the course of this paper diagnostic labels will merely be reported as they were used by the authors of the literature being reviewed, and no attempt will be made to differentiate or interpret differences between terms such as infantile autism, childhood schizophrenia, childhood psychosis, etc. Issues such as etiology, diagnosis, and prognosis have been examined in detail elsewhere (Bosch 1970; DeMyer et al. 1973; Des Lauriers 1967; Kanner 1973; Miller 1975; Ornitz 1973; Rimland 1964, 1972; Rutter 1972,1975; Rutter & Bartak 1971; Ward 1974), and will not be specifically discussed here.

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REVIEW OF STUDIES

The proceedings of a conference held in 1959 and published the following year (Abramson 1960) contain the first five references to the use of psychedelic agents in the treatment of children. These references, which are summarized in Freedman, Ebin & Wilson (1962), contain reports of the treatment of a total of twelve children. Although extensive clinical details are not available, it appears that most of these children received LSD (Lysergic Acid Diethylamide) as an adjunct to ongoing psychotherapy, and that the results were quite promising in a number of cases.

An interesting parallel to the five reports in the 1959 conference was published in 1960. Apparently working independently of the North Americans whose work was reported in the conference, Rojas-Bermúdez (1960), working in Argentina, described the treatment of four cases he diagnosed as schizophrenia and two he diagnosed as early infantile autism. Although working under what he considered to be far from optimal circumstances, he reported "progressive augmentation of language, disinhibition of play, greater affective contact, disappearance of self-destructive behaviors, more adequate reactions to stimuli, integration of body image, disappearance of hallucinations, correction of moroseness, diminution of learning difficulties and of behavior disturbances." (Rojas-Bermúdez 1960). He used LSD as an adjunct to psychoanalytic psychotherapy.

Freedman, Ebin and Wilson (1962) studied the effects of LSD when used in twelve children, ten boys and two girls, who were selected from the population of a day school for schizophrenic children and who carried a diagnosis of "autistic schizophrenia". Ten of the children were given one exposure to LSD, while two received two exposures. The dosage was usually 100 μg and there was apparently no particular structure imposed on the experience – they were merely given the drug when they arrived at school and then observed during the course of the ensuing reaction, usually about four hours or a little more. Reactions under these circumstances included appetite loss, increased bodily awareness, desire for physical contact, and rapid mood swings. Although there was definitely an increase in vocalization in terms of laughter, sounds, and isolated words or phrases, "the hoped for change from muteness to speech did not occur." (Freedman, Ebin & Wilson 1962).

Probably the most outstanding contribution to the literature on the use of psychedelic drugs with children has been made by Dr. Lauretta Bender and her colleagues. Over a period of several years a number of publications were issued by this group (Bender 1966, 1967a, 1967b, 1970; Bender, Cobrinik & Faretra 1966; Bender, Faretra & Cobrinik 1963; Bender, Goldschmidt & Siva Sankar 1962; Faretra & Bender 1965) pertaining to their research on the effects of LSD, psilocybin and UML (1-methyl-d-lysergic acid butanolamide, a methylated derivative of LSD marketed by Sandoz as Sansert® or Methysergide and used in the treatment of migraine headaches). The bulk of this work involved the use of LSD, which was administered to a total of 89 children ranging in age from six to fifteen years. Initial dosages of LSD were 25 μg/week, which was gradually increased as the safety of the procedure was demonstrated. Some children were ultimately treated with daily dosages of 150 μg for periods of as long as two years. LSD was administered as a chemotherapeutic agent without imposing any formal psychotherapeutic structure beyond what was already part of the hospital ward where they resided.

In order to understand Dr. Bender's work, it is necessary to have some knowledge of her theoretical orientation. She defines childhood schizophrenia as "a disorder in maturation characterized by an embryonic primitive plasticity in all areas of integrative brain functioning from which behavior subsequently arises." (Bender, Cobrinik & Faretra 1966). Although in some places reference is made to children who are merely diagnosed as "autistic", the term "autistic-schizophrenic" is more common, and seems to imply that autism is viewed as one of many possible symptoms or forms of childhood schizophrenia. Autism is in turn described as "a withdrawal or denial defense against disturbing sensations arising from disturbed autonomic function and perceptual function and anxiety in the young child with lagging and atypical maturation." (Bender, Cobrinik & Faretra 1966).

Although Dr. Bender and her colleagues were originally interested in the possibility that the psychedelic effects of LSD might "break through the autistic defenses of severely schizophrenic children" (Bender 1966), they soon became more intrigued by the effects on the autonomic nervous system of repeated administrations. It seemed that regular administration tended to normalize the plasticity and lack of maturation noted above, resulting in improved reality contact, a reduction in the reporting of bizarre fantasies and preoccupations, weight gain, improved gastro-intestinal regulation, normalization of sleep patterns, increased scores on the Vineland Social Maturity Scale, a rise in IQ on the WISC (Wechsler Intelligence Scale for Children), normalization of the blood pressure response to epinephrine injection, improved comprehension of speech, reduction in stereotyped motor play, lower anxiety, and elimination of the need for tranquilizing, antidepressant and sedative medication which most of the children had been taking prior to treatment with LSD. Although most of these results were described for various subsamples of the entire population studied, and the studies generally lacked controlled designs and statistical analyses of the data, nevertheless one could certainly consider their results to be promising.

UML was tried by the Bender group on the grounds that it might have the same impact on the autonomic nervous system, without being hallucinogenic. Although it did seem to have considerable promise in this regard, it was associated with side effects of muscular spasms and occasional vasomotor changes in the legs, leading to cyanosis of the legs in one case. When such side effects appeared, the children were switched to LSD without difficulty.

Psilocybin was only given to ten children (Faretra & Bender 1965), and was used in the context of an eight-week study of the ability of LSD, UML and psilocybin to normalize autonomic nervous system responses to injections of saline, epinephrine and pilocarpine. It was concluded that there was no difference in the effects of LSD, UML and psilocybin in this regard, with the results suggesting that all three drugs tend to potentiate the responses of the sympathetic system with less effect on the parasympathetic system.

In an attempt to replicate Bender's findings using a more rigorous methodology, Rolo et al. (1965) studied one twelve-year-old schizophrenic boy intensively for 49 days. Silent motion pictures were made of the child on eight occasions, each time while he was exposed to various motor and social tasks. Four of the filmings took place during the course of a 28-day trial of LSD in a daily dosage of 100 μg. Subsequent blind ratings of the films by professional and nonprofessional judges failed to produce evidence of therapeutic effects of the LSD. The authors note that no conclusions can be drawn from their data because of their limited sample size, and close with a statement of their intention to explore the procedure with a larger population. However, no published reports of further studies by this group have appeared, and it has since been learned that "the experiments were discontinued for a number of reasons" (Abramson 1975).

Another series of studies that seem to have been directly stimulated by Bender's work was carried out by Simmons and his colleagues (Simmons et al. 1966; Simmons, Benor & Daniel 1972; Simmons, Sparkes & Blake 1974). A total of nineteen children ranging in age from four years nine months to thirteen years were treated with a uniform dose of 50 μg of LSD on from two to five occasions. Of the seventeen boys, two were labelled autistic, while the remaining fifteen boys and the two girls in the sample were referred to as schizophrenic. Precise and objective ratings were made of behavior under the influence of LSD as well as during control (non-drug) periods and, in one study, two subjects were also given a double-blind inert placebo on two occasions. While noting the difficulties encountered because of the high intra- and inter-subject variability in behavior, the authors nevertheless reported the following effects:

1) Substantial affect changes: all but one subject showed strong positive affect on at least one occasion, although seven also showed numerous fear responses (the one child who failed to show any positive effect failed to show any changes in effect whatsoever).
2) Decreased self-stimulation in nine of the seventeen children who characteristically manifested this symptom.
3) Marked diminution of motor activity in ten children.
4) Periods of apparent preoccupation with some internal or external event in thirteen children.
5) A tendency to seek close contact with the adult who was present, while at the same time being less responsive to tasks and commands presented directly by the adult.
6) A diminution in aggressive behavior.

Bos (1971) reports the use of LSD as an adjunct to dynamically oriented psychotherapy with four severely disturbed children, ranging in age from three and one half years to eight years. Three drug sessions are described for one patient, with one each for the other three. The dosage range was 1.1-1.3 μg/Kg, and an active therapeutic approach was employed, using music, symbolic play with puppets and dolls, modeling with clay and (in the case of the 3½-year-old boy) extended holding of the patient in a female therapist's arms. Significant improvement is noted for three of the patients, although it seems to be implied that it was of a transitory nature for one of the three. No indication of outcome is given for the fourth patient. Refering to these four cases and "other experiences" Bos concluded with the following: "In the hands of the dynamically-oriented child psychotherapist LSD can in this way become a key to the primary process (Freud), a tool of the positive disintegration (Dabrowski) of the psycho-pathological structures of the formative period of development of the child's personality, that is, the structures therapeutically up to now most inert."

In his book describing a large research program using psychedelics as adjuncts to psychotherapy, Fontana (1965) devotes a relatively small number of pages to the treatment of children. Nevertheless, he seems to imply, without giving specific figures, that he and his colleagues have had fairly extensive experience in treating children. He reports having given individual treatment to children three years of age and older who present "severe psychic disturbances, many of them affected by severe mental-organic deficit." LSD, psilocybin and mescaline were given in doses of 1.5 μg/Kg, 1-6 mg and 0.1 g respectively, without any complications attributable to the drugs. Emphasis is placed on the need for the establishment of good therapeutic rapport before the drugs are introduced into the therapy. The authors make a point of mentioning that the drug sessions should be conducted in the same room where the non-drug interviews take place. Music and food are offered during the period of drug action, along with interpretations of transference that seem to be based largely on the object relations theory of Melanie Klein. Results are described as being successful in the majority of cases.

The brevity of Fontana's (1965) description of his work with children is particularly unfortunate in that he seems to be the only author who has worked with psychedelics as adjuncts to group psychotherapy with children. The groups usually have six to eight children and meet once each week for one hour in a conventional

therapeutic format. Drug-assisted therapy sessions are introduced into this ongoing regimen about once every six months, using the same drugs in the same dose ranges described above for use in individual psychotherapy. It is reported that the group approach seems indicated primarily for children "with particular maladjustments in social environments appropriate for their ages." (Fontana 1965).

Probably one of the most fascinating articles in the literature is the case study published by Fisher (1970). His report was derived from a study of twelve autistic and schizophrenic children who were treated with psilocybin and LSD. The study had to be terminated prematurely due to legal restraints that came to be placed on the use of the drugs in the early 1960's, and no final report was ever published. Consequently the only information available on the study is contained in an unpublished interim report (Fisher & Castille 1963), which is partially described in Mogar and Aldrich (1969), and Fisher's case study (Fisher 1970).

The case presented by Fisher is that of a twelve-year-old girl who was hospitalized in a large state institution for the mentally retarded which had many severely emotionally disturbed children in its population. She was born prematurely to a paranoid-schizophrenic mother and suffered from congenital dislocation of the hips and knees, congenital heart murmur and retrolental fibroplasia. Her development had been slow and marked by hospitalization and repeated evaluations, during the course of which she received "a variety of diagnoses including CNS pathology, childhood schizophrenia, mental retardation, severe emotional disturbance and severe brain injury from birth." (Fisher 1970). Likewise her behavior had been described as "bizarre, grossly regressive, retarded, hyperactive, assaultive, erratic and destructive." (Fisher 1970). At the time she was evaluated for treatment with psychedelics, after a number of drugs and ten ECT (electro-convulsive therapy) treatments had produced no improvement, she was described in the following manner:

> " . . . she was acutely psychotic and had virtually no contact with anyone. She was a rather large girl for her twelve years, quite blind, apparently only able to see very little when she held an object within a couple of inches of one eye. When she moved, she bounded, with a pronounced lurch and limp and it was amazing she had as few falls and crashes as she did. Her hair was rather long, oily and stringy and her skin was covered with acne. She always appeared dishevelled and was quite an ugly sight. Her typical day was spent sitting in a corner of the ward with two major activities, one was protecting herself from the assaults of other children and the second was twirling bits of paper in her long fingers, constantly rocking herself, masturbating and talking word-salad almost incessantly." (Fisher 1970).

She was given a total of thirteen treatment sessions using LSD (in a dose range from 100 to 300 μg), two treatment sessions using psilocybin (10 mg once and 30 mg once), and one treatment session combining the two (200 μg LSD and 10 mg psilocybin). The treatment approach placed great emphasis on the importance of the interpersonal element in producing psychotherapeutic change, and was based on a conceptualization of psychosis as "a massive defensive system of repression-avoidance-denial in the service of protecting the individual from experiencing his feelings." (Fisher 1970). During the course of the sixteen drug-assisted sessions the patient made quite dramatic inroads into her own "massive defensive system". When the project had to be terminated she was described as follows:

> "It was obvious that J became much better, She ceased her isolated, autistic behavior to a very large degree – she no longer sat in a corner, twisting papers, masturbating and talking word-salad. She had chores which she did on the ward. She talked to people rationally and helped with the smaller children. Her comments about other patients, and sometimes staff, were painfully accurate. She tried to learn but found it almost impossible because of her blindness." (Fisher 1970).

Most of the improvement appears to have been maintained during the five years when it was possible to obtain follow-up information. At the end of that time she was discharged to her parents.

CHROMOSOME DAMAGE ISSUE

The question of possible chromosomal damage as a result of the ingestion of LSD has been a controversial one, and can be expected to elicit especially heated debate when children are being considered for treatment. Fortunately an excellent and comprehensive review of the literature is available (Dishotsky et al. 1971), as well as follow-up chromosomal evaluations by two of the research teams whose work is reviewed above (Bender & Siva Sankar 1968; Simmons, Sparkes & Blake 1974).

Dishotsky et al. (1971), after examining carefully a great deal of data on chromosomal damage in subjects who were users of illicit LSD of unknown purity, as contrasted with those who received the drug in pure

form in a medical and/or research setting, came to the conclusion that "chromosome damage, when found, was related to the effects of drug abuse in general and not, as initially reported, to LSD alone." The authors offer their belief in the more general statement that:

> "... pure LSD ingested in moderate doses does not damage chromosomes *in vivo,* does not cause detectable genetic damage, and is not a teratogen or a carcinogen in man. Within these bounds, therefore, we suggest that, other than during pregnancy, there is no present contraindication to the continued controlled experimental use of pure LSD."

Among the reports on which Dishotsky et al. (1971) based the above conclusions was the one by Bender and Siva Sankar (1968). In the later report, the authors describe a comparison of chromosome abnormalities in seven children previously treated with LSD versus twenty who had not been so treated. It is of interest not only that they failed to find differences between these two groups, but that the LSD was given in "daily doses of 100 to 150 μg for 5½ to 35 months." This would imply a minimum total dosage of 16,800 μg and possible maximum of over 159,000 μg.

The Dishotsky et al. (1971) review, of course did not include the more recent report by Simmons, Sparkes and Blake (1974). The later group of investigators examined the karyotypes of each of four schizophrenic children at four points in time: before treatment with LSD, immediately after a six- to ten-week course of LSD treatment during which a total of 270 μg to 450 μg of the drug was administered, three months after treatment, and approximately one year after treatment. Individual doses were from 50 μg to 75 μg, and at no time was there found to be an increase in chromosome damage over the pre-treatment baseline.

Taken together, the above reports on chromosomal damage as a result of LSD leave little cause for concern. The summary by Dishotsky et al. (1971) to the effect that "pure LSD ingested in moderate doses does not produce chromosome damage detectable by available methods" is still valid, and the data from the Bender and Siva Sankar (1968) study would seem to indicate that a liberal interpretation of "moderate doses" does not invalidate it.

DISCUSSION

The physical and psychological safety of the responsible use of psychedelic agents with severely disturbed children seems to be relatively well established. The data of Bender and Siva Sankar (1968), Dishotsky et al. (1971), and Simmons, Sparkes & Blake (1974) indicate that there is no measurable risk of chromosome damage associated with the use of LSD, even when daily doses from 100 to 150 μg are given for as long as 35 months. Nor is there reason to suspect any other form of physical or psychological risk with individual doses as high as 400 μg (Fisher & Castile 1963; Mogar & Aldrich 1969). From a psychological standpoint, the worst outcome reported is no improvement. Although such an outcome might be considered to be psychologically deleterious to the extent that it engendered a feeling of failure or disappointment, such a feeling is certainly not a novel one for this population – or for the therapists who treat them.

The fact that treatment failures have been reported, and will no doubt continue to occur, deserves emphasis. Much of the early research with psychedelics can be characterized as representing a shift from the "medical model" to the "magical model". The latter term is meant to connote an expectation that *all* patients in a given group will be dramatically and miraculously improved if treated with psychedelics. Such an expectation seems to have been implied by Freedman, Ebin and Wilson (1962) when they conclude their article on twelve mute (or nearly mute) schizophrenic children who were given an average of slightly over 100 μg of LSD on one or (for two subjects) two occasions, with the statement: "The hoped for change from muteness to speech did not occur." Another connotation of the magical model is that psychedelics will be effective only if they are given in high enough dosage and/or on enough occasions, with little or no regard for the critical importance of the interpersonal context in which, and the intent with which, the drugs are used. "Street trippers" who report several hundred exposures to high dosages of LSD without observable personality changes attest to the fallacy of this model, and the point is underscored by Fisher (1970) in his case report when he notes that "If there is anything to be learned from this treatment attempt it is that little of what may be called health or growth can occur without intimate and honest relationships between people."

The issue of interpersonal contact when a psychedelic is administered derives directly from the theoretical stance one takes regarding the mode of action by which the manifested effects of treatment are produced. The two most basic theoretical positions are the chemotherapeutic and the psychotherapeutic. In the former, the drugs are viewed as chemical agents acting on the biological organism in a direct and predictable manner to produce relatively uniform results (in the way that aspirin might be expected to reliably demonstrate

analgesic properties), regardless of the status of most extrapharmacological and interpersonal variables. In the latter, the drugs are regarded as powerful adjuncts to ongoing psychotherapeutic involvement characterized by deep and stable rapport between the patient and members of the treatment team. There is near unanimity among serious investigators that the psychotherapeutic approach is the one holding the greatest promise. Although Bender's positive results seem at first glance to have been produced in an essentially chemotherapeutic framework, Mogar & Aldrich (1969) astutely point out that "her reports are replete with descriptions of spontaneous interactions between staff and children."

Several different, and at times overlapping, conceptual models might be offered to account for the manner in which psychedelic agents can be of use as adjuncts to the treatment of severely disturbed children within the psychotherapeutic framework. Some of these models are merely extensions and/or modifications of relatively traditional approaches to treatment in which the psychedelic serves to enhance the established treatment; others are rather novel and based on the more unique properties of the drugs.

Bender offers an example of the enhancement of an established treatment when she suggests that LSD can be used to replace the traditional tranquilizers in the ward management of schizophrenic children, without the usual side effect of making them groggy and sleepy (Bender et al. 1966). She hypothesized that this enhancement of the effectiveness of an apparently chemotherapeutic approach is due to the fact that LSD has a "normalizing effect upon the labile plastic autonomic system characteristic of schizophrenic children." (Bender 1970). Although the extrapharmacological factors noted by Mogar & Aldrich (1969) may have accounted for some of Bender's positive therapeutic results, her application of psychedelics was certainly within the framework of a traditional therapeutic milieu. Whether one conceptualized the mode of action of the drugs in terms of ward management or some other model, whatever influence the drugs had was exerted by means of enhancing the effectiveness of the established treatment approach.

Another treatment modality that has gained significant acceptance in the professional community is the behavioral approach pioneered by Lovaas (Lovaas et al. 1973). This approach relies heavily on responsiveness to direct interpersonal exchanges, a responsiveness that Richer & Richards (1975) have shown to be very much lacking in autistic children. Hence it appears that the techniques developed by Lovaas are hampered by the characteristic behavior of the very patients for whom they are intended. Interestingly, Lovaas is a co-author of the paper by Simmons et al. (1966) that contains the results of two experimental studies in which two autistic male five-year-old identical twins were exposed to a number of experimental situations after receiving either 50 μg of LSD or a placebo. Although these experimental situations were not designed specifically to be therapeutic in and of themselves, they were clearly meant to assess the impact of LSD on the kinds of interpersonal responsivity so critical to a behavioral approach to treatment. In discussing the results of these studies, the authors note:

> "Therapeutic intervention in severely retarded or regressed children utilized to a great extent close physical interaction to which the child must respond. In the usual state it is often difficult to intrude upon the child because of a general lack of responsiveness coupled with the random character of responses when they are obtained. The barrier to external stimuli is further increased by self-stimulatory behavior with a high percent time appearance both in the resting state and when stimuli are presented from the external environment. The results of our experiments clearly demonstrate changes [with LSD] in exactly these areas with increased attendance to physical and face contact with an attending adult and concomitant reduction of competing self-stimulatory behavior." (Simmons et al. 1966).

The use of psychedelics to enhance a more analytically-oriented approach to therapy is illustrated in the work of Fontana and of Fisher. Fontana (1965) claims that LSD, psilocybin and mescaline cause an initial augmentation of habitual defense mechanisms, followed by a reduction in defenses and a significant increase in regressive behavior. The therapist serves largely as a target for the child's projections, especially during the regressions, and through the therapist's interpretations "a sane and complete relationship with the object is reestablished." Fisher (1970) seems to be referring to a similar conceptualization of the utility of LSD. Recall his definition of psychosis as "a massive defensive system of repression-avoidance-denial in the service of protecting the individual from experiencing his feelings." Within this theoretical framework he reasons that psychedelics would be capable of enhancing therapy as follows:

> "The rationale behind the use of psychedelic agents with psychotic children was that these drugs have the capacity to activate or chemically energize various areas of the brain to an extreme degree resulting in vivid experiencing in the area of

perception, emotion, memory and feeling. In addition, these agents seem to inhibit the higher brain centers which are considered responsible for such functions as inhibition, intellectual abstractions and cognition. The psychedelic drugs tend to release experiences of phenomena normally repressed or denied or not considered essential in meeting the demands of one's own and others' egos. Experiences and feelings ordinarily denied awareness receive proportionately more energy causing them to break into a state of consciousness which is less strongly dominated by the usual defenses and values which one has developed. Without the usual complicated defensive structures and censures, the individual is able to re-experience himself in a far less distorted way and to re-evaluate the worthiness of his essential self." (Fisher 1970).

Two rather novel approaches to the treatment of severely disturbed children, which almost undoubtedly have their roots in the same existential issue, are based on the ability of the psychedelics to catalyze experiences having to do with birth and death. Grof (1975) has postulated that many psychological disturbances have their roots in the birth trauma, and that psychedelics provide a unique opportunity for the working through of the effects of the trauma. Torrey, Hersh and McCabe (1975) have pointed out that a number of recent studies (Bender & Faretra 1961; Gittleman & Birch 1967; Harper & Williams 1974; Hinton 1963; Lobascher, Kingerlee & Gubbay 1970; Osterkamp & Sands 1962; Pollack & Woerner 1966; Taft & Goldfarb 1964; Vorster 1960; Whittam, Simon & Mittler 1966; Wing, O'Connor & Lotter 1967) have indicated an association between autism and/or childhood schizophrenia on one hand, and complications of pregnancy and delivery on the other. Although it is clear that some significant percentage of severely emotionally disturbed children suffer from mental retardation and other organic impairments (whether a result of complications of pregnancy and delivery or not), some show no measurable sign of organicity. Perhaps those without organic damage are at least in part manifesting severe disturbances in behavior as a result of the psychological trauma of birth, and might therefore be expected to respond to a mode of therapy that addresses this issue, as Grof (1975) suggests psychedelic psychotherapy does. In this regard, Fontana (1965) reports having observed "dramatizations of birth" in some of the children he treated.

On the other side of the same existential coin from birth is death. Bender (1969) states that there is an "ever-present core anxiety" at the heart of the disordered behavior of autistic and schizophrenic children. She attributes this anxiety to a "global disorganization in physiological and psychological functions that . . . are characterized by plasticity in patterning, in boundaries, and in relationships." Such disorganization of function is in turn traced to "a combination of inherited tendencies and noxious or traumatic events, intra-uterine or perinatal." Hence one might say that Bender considers this core anxiety to be at least in part the result of the fact that these children have had unusually traumatic births, as described above.

However, the fact that Bender describes this core anxiety as being "ever-present" makes it sound very much like the conceptualization that other authors have attempted to apply to the fear of death. Becker (1973), for example, hypothesizes that death "is the basic fear that influences all others, a fear from which no one is immune, no matter how disguised it may be." The parallels between the traumas of birth and death are great enough to have led Kastenbaum & Aisenberg (1972) to include a chapter entitled "Birth and Death: Some Mutual Implications" in their book *The Psychology of Death*. In that chapter they review anthropological data as well as the psychoanalytic works of theorists such as Rank and Ferenczi, and note the similarity between birth and death in that they both represent a separation. One might postulate that there would be a positive correlation between the severity of the birth trauma and the average level of a person's "core anxiety" or fear of death. LSD has already demonstrated that it can be of significant benefit, when used in the context of brief, intensive psychotherapy, in reducing the fear of death in adults who are facing the prospect of imminent death from cancer (Richards et al. 1972). There seems to be no reason to believe that it would not be of similar utility in dealing with the birth trauma, fear of death, or core anxiety, of children.

In sum, the relative safety and therapeutic promise of the use of psychedelic compounds such as LSD when used in a psychotherapeutic context with severely disturbed children are well established. Further research will be required to determine the degree to which that promise can be reliably fulfilled.

REFERENCES

Abramson, H.A. (Ed.). 1960. *The Use of LSD in Psychotherapy: Transactions of a Conference on d-Lysergic Acid Diethylamide (LSD-25) April 22,23 and 24, 1959, Princeton, New Jersey.* New York: Josiah Macy, Jr. Foundation.

Abramson, H.A. 1975. Personal communication, April 28.

Becker, E. 1973. P. 15 in: *The Denial of Death.* New York: Free Press.

Bender, L. 1966. P. 1 in: d-Lysergic acid in the treatment of the biological features of childhood schizophrenia. *Diseases of the Nervous System* Vol. 27(7):39-42.

Bender, L. 1967a. Theory and treatment of childhood schizophrenia. *Acta Paedopsychiatrica* Vol. 34(fascicule 10/11/12):298-308.

Bender, L. 1967b. Childhood schizophrenia: A review. *Journal of the Hillside Hospital* Vol. 16(1):10-22.

Bender, L. 1969. A longitudinal study of schizophrenic children with autism. *Hospital and Community Psychiatry* Vol. 20(August):230-237.

Bender, L. 1970. P. 270 in: Children's reactions to psychotomimetic drugs. Pp. 265-273 in: Efron, D.H. (Ed.). *Psychotomimetic Drugs.* New York: Raven Press.

Bender , L.; Cobrinik, L.; Faretra, G. & Siva Sankar, D.V. 1966. Pp. 464-465 in: The treatment of childhood schizophrenia with LSD and UML. Pp. 463-491 in: Rinkel, M. (Ed.). *Biological Treatment of Mental Illness.* New York: L.C. Page & Co.

Bender, L. and Faretra, G. 1961. Pregnancy and birth histories of children with psychiatric problems. *Proceedings of the Third World Congress of Psychiatry* Vol. 2:1329-1333.

Bender, L.; Faretra, G. and Cobrinik, L. 1963. LSD and UML treatment of hospitalized disturbed children. Pp. 84-92 in: Wortis, J. (Ed.). *Recent Advances in Biological Psychiatry* (Vol. 5 – The Proceedings of the Seventeenth Annual Convention and Scientific Program of the Society of Biological Psychiatry, Toronto, Ontario, May 4-6, 1962). New York: Plenum Press.

Bender, L.; Goldschmidt, L. and Siva Sankar, D.V. 1962. Treatment of autistic schizophrenic children with LSD-25 and UML-491. Pp. 170-177 in: Wortis, J. (Ed.). *Recent Advances in Biological Psychiatry* (Vol. 4 – The Proceedings of the Sixteenth Annual Convention and Scientific Program of the Society of Biological Psychiatry, Atlantic City, New Jersey, June 9-11, 1961). New York: Plenum Press.

Bender, L. and Siva Sankar, D.V. 1968. P. 749 in: Chromosome damage not found in leukocytes of children treated with LSD-25. *Science* Vol. 159(3816):749.

Bos, P. 1971. P. 239 in: [The use of LSD in child psychology.] *Československá Psychiatrie* Vol. 67(4):237-241.

Bosch, G. 1970. [*Infantile Autism: A Clinical and Phenomenological-Anthropological Investigation Taking Language as the Guide.*] (D. Jordan and I. Jordan, trans.). New York: Springer-Verlag.

DeMyer, M.K.; Barton, S.; DeMyer, W.E.; Norton, J.A.; Allen, J. and Steele, R. 1973. Prognosis in autism: A follow-up study. *Journal of Autism and Childhood Schizophrenia* Vol. 3(3):199-246.

Des Lauriers, A. 1967. The schizophrenic child. *Archives of General Psychiatry* Vol. 16(Feb.):194-201.

Dishotsky, N.I.; Loughman, W.D.; Mogar, R.E. and Lipscomb, W.R. 1971. P. 439 in: LSD and genetic damage: Is LSD chromosome damaging, carcinogenic, mutagenic or teratogenic? *Science* Vol. 172(3982):431-440.

Faretra, G. and Bender, L. 1965. Autonomic nervous system responses in hospitalized children treated with LSD and UML. Pp. 1-8 in: Wortis J. (Ed.). *Recent Advances in Biological Psychiatry* (Vol. 7 – The Proceedings of the Nineteenth Annual Convention and Scientific Program of the Society of Biological Psychiatry, Los Angeles, California, May 1-3, 1964). New York: Plenum Press.

Fisher, G. 1970 Pp. 112,114 & 127 in: The psycholytic treatment of a childhood schizophrenic girl. *International Journal of Social Psychiatry* Vol. 16(2):112-130.

Fisher, G. and Castile, D. 1963. Interim report on research project: An investigation to determine therapeutic effectiveness of LSD-25 and psilocybin on hospitalized severely emotionally disturbed children. Unpublished manuscript. Fairview State Hospital, Costa Mesa, California, February 10. (Not available – cited in Mogar and Aldrich 1969).

Fontana, A.E. 1965. Pp. 120, 122, 123 & 181 in: [*Psychotherapy with Hallucinogens*]. Buenos Aires: Editorial Losada.

Freedman, A.M.; Ebin, E.V. and Wilson, E. 1962. P. 212 in: Autistic schizophrenic children: An experiment in the use of d-lysergic acid diethylamide (LSD-25). *Archives of General Psychiatry* Vol. 6(Mar.)35-45.

Gittleman, M. and Birch, H.G. 1967. Childhood schizophrenia: Intellect, neurological status, perinatal risk, prognosis and family history. *Archives of General Psychiatry* Vol. 17(1):16-25.

Grof, S. 1975. *Realms of the Human Unconscious: Observations From LSD Research.* New York: The Viking Press.

Harper, J. and Williams, S. 1974. Early environmental stress and infantile autism. *Medical Journal of Australia* Vol. 1(Mar 9):341-346.

Hinton, G.G. 1963. Childhood psychosis or mental retardation: A diagnostic dilemma. *Canadian Medical Association Journal* Vol. 89:1020-1024.

Kanner, L. 1973. *Childhood Psychosis: Initial Studies and New Insights.* Washington, D.C.: V.H. Winston & Sons.

Kastenbaum, R. and Aisenberg, R. 1972. *The Psychology of Death.* New York: Springer Publishing Co., Inc.

Lobascher, M.E.; Kingerlee, P.E. and Gubbay, S.S. 1970. Childhood autism: An investigation of etiological factors in twenty-five cases. *British Journal of Psychiatry* Vol. 117:525-529.

Lovaas, O.I.; Koegel, R.; Simmons, J.Q. and Long, J.S. 1973. Some generalization and follow-up measures on autistic children in behavior therapy. *Journal of Applied Behavior Analysis* Vol. 6(1):131-166.

Miller, R.T. 1975. Childhood schizophrenia: A review of selected literature. Pp. 357-401 in: Chess, S. and Thomas, A. (Eds.). *Annual Progress in Child Psychiatry and Child Development.* New York: Brunner/Mazel.

Mogar, R.E. and Aldrich, R.W. 1969. P. 48 in: The use of psychedelic agents with autistic schizophrenic children. *Behavioral Neuropsychiatry* Vol. 1(8):44-50, 52. (Reprinted: *Psychedelic Review*, 1969, No. 10: 5-13).

Ornitz, E.M. 1973. Childhood autism: A review of the clinical and experimental literature. *California Medicine* Vol. 118(4):21-47.

Osterkamp, A. and Sands, D.J. 1962. Early feeding and birth difficulties in childhood schizophrenia: A brief study. *The Journal of Genetic Psychology* Vol. 101:363-366.

Pollack, M. and Woerner, M.G. 1966. Pre- and perinatal complications and "childhood schizophrenia": A comparison of five controlled studies. *Journal of Child Psychology and Psychiatry and Allied Disciplines* Vol. 7(3/4):235-242.

Richards, W.A.; Grof, S.; Goodman, L. and Kurland, A.A. 1972. LSD-assisted psychotherapy and the human encounter with death. *Journal of Transpersonal Psychology* Vol. 4(2):121-150.

Richer, J. and Richards B. 1975. Reacting to autistic children: The danger of trying too hard. *British Journal of Psychiatry* Vol. 127:526-529.

Rimland, B. 1964. *Infantile Autism.* New York: Appleton-Century-Crofts.

Rimland, B. 1972. Recent research on infantile autism. *Journal of Operational Psychiatry* Vol. 3:35-39.

Rojas-Bermúdez, J.G. 1960. P. 498 in: [Combined treatment of psychoanalysis and LSD-25 in psychotic children]. *Acta Neuropsiquiátrica Argentina* Vol. 6:497-500.

Rolo, A.; Krinsky, L.W.; Abramson, H.A. and Goldfarb, L. 1965. Preliminary method for study of LSD with children. *International Journal of Neuropsychiatry* Vol. 1(6):552-555.

Rutter, M. 1972. Childhood schizophrenia reconsidered. *Journal of Autism and Childhood Schizophrenia* Vol. 2(4):315-337.

Rutter, M. 1975. The development of infantile autism. Pp. 327-356 in: Chess,S. and Thomas, A. (Eds.). *Annual Progress in Child Psychiatry and Child Development.* New York: Brunner/Mazel.

Rutter, M. and Bartak, L. 1971. Causes of infantile autism: Some considerations from recent research. *Journal of Autism and Childhood Schizophrenia* Vol. 1(1):20-32.

Simmons, J.Q.; Benor, D. and Daniel, D. 1972. The variable effects of LSD-25 on the behavior of a heterogeneous group of childhood schizophrenics. *Behavioral Neuropsychiatry* Vol. 3(1-2):10-24.

Simmons, J.Q.; Leiken, S.J.; Lovaas, O.I.; Schaeffer, B. and Perloff, B. 1966. P. 1207 in: Modification of autistic behavior with LSD-25. *The American Journal of Psychiatry* Vol. 122(May):1201-1211.

Simmons, J.Q.; Sparkes, R.S. and Blake, P.R. 1974. Lack of chromosomal damaging effects by moderate doses of LSD *in vivo. Clinical Genetics* Vol. 5:59-61.

Taft, L.T. and Goldfarb, W. 1964. Prenatal and perinatal factors in childhood schizophrenia. *Developmental Medicine and Child Neurology* Vol. 6(1):32-43.

Torrey, E.F.; Hersh, S.P. and McCabe, K.D. 1975. Early childhood psychosis and bleeding during pregnancy. *Journal of Autism and Childhood Schizophrenia* Vol.5:287-297.

Vorster, D. 1960. An investigation into the part played by organic factors in childhood schizophrenia. *Journal of Mental Science* Vol. 106:494-522.

Ward, A.J. 1974. Childhood psychopathology: A natural experiment in etiology. *Journal of Child Psychiatry* Vol. 13(1):153-165.

Whittam, H.; Simon, B.G. and Mittler, P.J. 1966. The early development of psychotic children and their sibs. *Developmental Medicine and Child Neurology* Vol. 8(5):552-560.

Wing, J.K.; O'Connor, N. and Lotter, V. 1967. Autistic conditions in early childhood: A survey of Middlesex. *British Medical Journal* Vol. 3(Aug 12):389-392.

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