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Contrasting Illness and Behavioral Models for the Treatment of Autistic Children: A Historical Perspective

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It is the purpose of these comments to provide a brief history of the behavioral approach to the treatment of autistic children, and to define certain important features of that approach. To do so, it may be helpful to contrast the two main approaches that have been applied to the study and treatment of autistic children. Such a contrast may help elucidate both approaches. The two approaches or models can be referred to as the "disease" or illness model and the learning or "behavioral" model.

According to the disease model, there exists an illness labeled autism, and the child's behaviors are considered symptoms or expressions of this underlying problem. Two main schools of thought feed into the disease model. One school, centering on Freud and psychodynamic theory, postulates illness caused by environmental factors, such as abnormal parent-child relationships. The other school of thought springs from organic psychiatry, which postulates an illness caused by nutritional, genetic, or traumatic injury to the nervous system. One school postulates psychic damage, the other structural damage. In either case, the cause of the child's abnormal behaviors is considered to be of an internal nature and much effort is expended in defining and redefining the kind of behavioral symptoms or symptom "clusters" a child should express in order for us to infer that these behavioral characteristics are caused by a disease called "autism."

With the disease model, treatment is focused on identifying and removing "autism." Both the psychodynamic and organic psychiatrists feel that once this hypothetical inner state or condition is removed, the autistic behavior may somehow remediate without any explicit treatment. The child's behavior as such is not considered the prime target for intervention.

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Behaviors are symptoms and intervention at that level is called "symptomatic treatment."

The conception of the child as sick led also to certain attitudes toward such children. These attitudes further helped to define the disease model. For example, as adults we were told to view the expression of the children's deviant behavior as necessary and "therapeutic." The usual contingencies that society (parents, teachers) prescribed for normal children were not to be prescribed for sick children. Parents were advised to be "accepting" of deviant behaviors. The conception of the child as sick also communicated a great deal of pessimism about the child's future since the child's behaviors, or lack thereof, were considered an inevitable product of underlying disease. For example, the child's failure at expressing abstract language was considered to reflect underlying brain damage to critical "language centers" and this damage was considered chronic. Similarly, the failure of an adequate parent-child relationship at a "critical age" caused a permanent failure of the child to form close emotional relationships. Thus much conceptual effort has been expounded at "explaining" why the child did not improve.

If the disease model had been a viable and effective model for treatment of autistic children, the behavioral model probably would not have seen the light of day. The problem is that the disease model of autism has failed both in identifying the cause of autism and in prescribing an effective treatment for such children. In fact, hospitalization of autistic children sometimes worsens their condition. Even labeling the child as "autistic" might be to his detriment. Despite these failures the influence of the disease model is so strong that most persons working in the field consider alternate models, such as a behavioral intervention, to be a stopgap or tentative procedure only, awaiting the day when the field discovers the magic pill, be it pharmacological or psychological.

It was in this milieu of pessimism about the future of autistic children that behavioral interventions began. The first such intervention was that of Ferster (1961), who showed the precision with which the autistic child could be taught, and the kind of research strategy that could be applied in studying treatment. The behavioral model that Ferster helped start was to draw heavily on experimental psychology. The conceptual structure, learning theory, had been the mainstay of experimental psychology for some 60 years and a research methodology had grown with it. The research methodology was to be the most significant aspect of the behavioral approach, because it would allow the field to move forward. Perhaps the main problem with traditional research on autistic children had been the failure of that research to eliminate fruitless or mistaken notions about autism. The improved research methodology affected both the design of the studies and the kinds of questions that were asked about autistic children.

In a nutshell, the new movement broke the big problem ("autism") down into smaller conceptual problems and went to work with an improved research design. To illustrate the research rationale of the new movement, let us briefly present some of the methodological problems that are involved in autism research using the disease model. It may be helpful to number the main problems. (1) It is possible that there does not exist a disease called autism. Stating it conservatively, there may not be a homogeneous group of children called autistic. The term *autistic* was coined prior to a functional analysis of the problem behaviors of autistic children; it is the public appeal value of the term that keeps it alive rather than its scientific merit. (2) Suppose one could identify a homogeneous group of autistic children, and that a study reported a neurological or psychological abnormality to be common to all such children and not to exist in other children. One cannot conclude from this information that this abnormality is the cause of the child's behaviors. The abnormality may just as well be the effect of the deviant behaviors. For example, the presence of an abnormal EEG when the child is 5 years old may be the result of his inadequate exposure to his physical and social environment rather than the cause of that exposure. Similarly, if someone were to report a psychological deviation among the child's parents, then this parental deviation might be the effect of living with an abnormal child rather than the cause of the child's abnormality. Most studies conceived within the disease model embody a design that does not allow the investigator to specify the direction of causality. (3) Both the child's abnormal behavior and his abnormal brain state (or abnormal parents) may covary as the effect of a third, unknown variable. For example, both the parent's and the child's deviance may covary as the result of a genetic variable common to both. In design terminology, it can be said that most research conceived within the disease model is weakened by such confounding variables. (4) Even if a neurological or psychological abnormality were established as causal, a treatment in all probability could not be prescribed from a knowledge of this abnormality. This is so because neurology does not possess a theory of behavior. In a similar way, psychodynamic theory can only deduce a treatment in the most general terms, with no empirical verification for its procedures.

Even though some investigators will and should persist in their research despite such serious methodological problems, it is important to define the *practical* limits of their research. Let us elaborate on point 4 above in more detail. It is important for investigators within the disease model not to mislead a client about a "cure" (for autism, as an example), because a treatment for autism might not be deducible though its cause were identified. For example, the identification of structural damage to the cortex of autistic children will not help treat autistic children any more than the identification of damage to optic fibers helps a blind person see. Almost

the opposite happened in the field of autism where the disease model excluded other forms of intervention from serious consideration. This was to be to the child's disservice. What was needed was a simpler conceptual system, more closely tied to treatment and with a more rigorous research base. Behavioral work emerged with an *applied* and practical emphasis, as will become apparent when we examine its development.

BEHAVIORAL CONCEPTIONS

Ferster (1961) argued essentially that the autistic child's behavioral deficiency could be understood as based on the failure of social stimuli to acquire reinforcing (rewarding) properties for them. He argued that phases of a child's behavioral development require the prior establishment of a set of social symbolic stimuli called secondary reinforcers. These stimuli are not powerful at birth but become powerful as the child interacts with his environment. Examples of such secondary (social) reinforcers are events like interpersonal closeness, a parent's smiles and verbal approval, the rewarding aspects of acting like an adult, etc. Such secondary reinforcers also involve the development of aversiveness in events such as losing a person's company, hurting another person's feelings, and meeting with disapproval. Ferster argued that these kinds of social events had no particular meaning or significance to an autistic child, therefore the child failed to develop as a human being. We become human to the extent we are affected by the people (society) around us. Like all summary statements, this is a gross oversimplification of Ferster's argument, which is rather eloquent and stated in some explicit detail, but it serves here to define the main point that Ferster made. Shortly after the publication of this theoretical argument, Ferster and DeMyer (1961, 1962) reported a series of experiments in which autistic children were exposed to very simple but highly structured environments in which they learned very simple behaviors, such as pulling levers and matching forms, for effective reinforcers such as food. These were very important experiments because they showed that the behavior of autistic children may be understood according to certain laws of learning from experimental psychology and may be helped by that body of information.

Shortly after Ferster's theoretical contribution and early experiments, a number of studies appeared that extended the behavioral model to deal with more meaningful and socially relevant behaviors. For example, behavioral interventions were used successfully to treat tantrums and aggression (Wolf, Risley, & Mees, 1964), to provide an analysis of self-destruction (Lovaas, Freitag, Gold, & Kassorla, 1965), and to teach speech (Hewett, 1965).

About the same time, Baer and Sherman (1964) showed how, using normal children, one might conceptualize imitative behavior within learning theory. The possibility of teaching imitative behaviors was a very important development, because it facilitated the teaching of very complex behaviors that cannot be taught by the better known shaping procedures. Soon Metz (1965) demonstrated how one could use reinforcement procedures to teach autistic children to imitate nonverbal actions. This was followed by a study of Lovaas, Berberich, Perloff, and Schaeffer (1966) showing how principles of reinforcement could be used to teach mute autistic children to imitate sounds and words.

An early development in behavioral treatment addressed itself to the acquisition of complex behavior such as language. The early studies of Wolf et al. (1964) and Hewett (1965) had already demonstrated the feasibility of using reinforcement principles to establish some early and elementary language. Risley and Wolf (1967) and Lovaas (1969) showed how one could use reinforcement principles to build very complex language behaviors, as in the case of grammar and semantics. Lovaas (1977) has provided a comprehensive review of language-building programs for autistic children. The success of the behavioral approach in building language in previously mute and echolalic children is one of its most significant achievements. This is so because language is an extremely complex behavior and one's ability to build such behaviors may be a measure of one's ability to build other complex behaviors.

It might be helpful to define the behavioral approach by describing the history of our understanding of self-destructive behavior. Wolf et al. (1964) observed early that self-destructive behavior would decrease if the behavior were placed on extinction. Shortly thereafter it was discovered that giving the child sympathy and attention *contingent* on self-destructive behavior made the behavior worse (Lovaas et al., 1965). The same study also reported a very narrow external stimulus (S^D) control over the self-destruction. These and similar findings from a large number of other clinics led to the conceptualization of self-destructive behavior as learned operant behavior. The behavior appeared to be a social approach response. The problem with this inference was observed in a later study by Carr, Newsom, and Binkoff (1976), which showed that in certain instances self-destructive behavior functioned more like an escape response, where the child sought to *avoid* demands. Time-out (removing the opportunity for social attention) contingent upon self-destructive behavior, which had helped the children we had seen, made the child in the study by Carr et al. worse.

It is important to note that the observations of Carr et al. did not make our earlier data on self-destruction invalid or useless but rather provided a broader empirical base for our understanding of self-destruction

as learned, operant behavior. Behaviorists follow an *inductive* approach in theory construction. New data change and strengthen theory; data do more than just "test" theory. Theoretical conceptions represent the effort of many rather than the accomplishments of just one person (as in the case of Freud and psychodynamic theory).

Similar development can be observed in our understanding of self-stimulatory behavior, which has been reviewed in more detail in another publication (Lovaas, Young, & Newsom, 1978), and in the understanding of echolalic and psychotic speech (cf. Carr, Schreibman, & Lovaas, 1975; Schreibman & Carr, 1978; Lovaas, Varni, Koegel, & Lorsch, 1977).

To summarize, in the very short period of 15 years the field moved very quickly through a set of demonstrations that showed a great deal of promise in helping a population of children that had resisted previous efforts at help. The reason for this very rapid development can be traced to two sources: (1) The new procedures relied very heavily on laws of learning already formulated by experimental psychologists over the previous 70 or 80 years, and these laws could be directly related to prescriptions for the child's treatment. (2) The new field did not study "autism," as had investigators working with the disease model. Instead, the child's behaviors were taken apart into smaller units (self-destruction, imitation, vocalizations, units of grammar, labeling, etc.), and these smaller units were studied separately in their relationship to separate and easily identifiable parts of the child's environment. As we have already stated, powerful research designs characterized these studies and much of the thrust of behavioral therapy continues to derive from its adherence to such sound research designs. Typically, these studies have used a single-subject or within-subject replication design, so that one may be reasonably certain that the intervention that was given did in fact help the child. The adherence to this kind of research design is probably the main strength of the behavioral approach to treatment.

SOME MAJOR PROBLEMS

Certain major problems remain. One such problem pertains to the situationality and reversibility of most treatment gains. Another problem pertains to the slow change with treatment; it is hard work to treat autistic persons. The possible perceptual and motivational deficiencies that may underlie these problems have been presented elsewhere (Lovaas et al., 1978).

Many behaviors remain that are not very well understood. For example, not much is known as yet about how to teach play. Most children seem to learn to play by playing with other children; perhaps information is

needed about who are ideal peers for autistic children and how to program social interaction among peers so as to help the children play more the way normal children do.

Another area that has not been explored systematically relates to the teaching of feeling and emotions. This concerns both the child's understanding of feelings of other people and a more adequate expression of his own feelings and emotions. Many autistic children have large apparent deficiencies in emotional expressions; for example, they show little remorse or sadness, many seem to lack humor, and so on. The laws that govern the acquisition of feelings may well be different from those that govern skills like language. Once the laws that govern these kinds of feelings have been identified, we will be better teachers/parents.

Other deficiencies in the behavioral model may yield more immediate solutions. Such a problem relates to the environment within which treatment should take place. Institutions such as hospitals do not provide good treatment environments. Behavioral conceptions promise rather immediate alternatives to hospitalization, as in teaching the child's parents to be professionals (Schreibman & Koegel, 1975). Parent training has relatively quickly emerged as an effective and efficient means of helping children with a variety of behavioral problems (cf. Bernal & North, 1978).

When the child's own parents are unable to help (for reasons of age, marital status, etc.), a viable alternative may center on the establishment of community-based teaching homes, operated by professional teaching parents. Such homes were initially designed by Dr. Montrose Wolf of the University of Kansas (see Wolf, Phillips, Fixsen, Braukmann, Kirigin, Willner, & Schumaker, 1976; Phillips, Phillips, Fixsen, & Wolf, 1974) to help delinquent and predelinquent youth stay out of reformatories. The critical element in the operation of such homes centers on the teaching parents' ability to handle the difficult behaviors of autistic persons. Training in behavioral principles may make such parents more likely to succeed. Teaching homes promise to be immediately useful for autistic persons. Lovaas, Glahn, Russo, Chock, Kohls, and Mills (Note 1) have described such teaching homes for autistic persons in more detail.

It became readily apparent that the information gained in the behavioral treatment of autistic children was immediately useful in the treatment and education of other children with developmental disorders. This is probably based on the fact that the behaviors of many disordered children have certain striking similarities. The programs developed to teach autistic children to dress, eat, toilet themselves, talk, or better manage their tantrums, etc., were immediately useful for retarded children, and vice versa. In general, it appears that the behaviors of autistic children are not radically different from those of many other children, be they normal,

aphasic, blind, hyperactive, etc. The procedures we use to teach language to autistic children are also useful for aphasic children. Procedures for reducing aggression in hyperactive children are also applicable to autistics as well as to normals. Attentional problems may be ameliorated in a similar manner across a number of different kinds of children. What has emerged, it seems, is an expertise in dealing with different kinds of *behaviors*. What this implies is that behavioral work with autistic children allows for an exchange of information and treatment techniques across many different kinds of children with different kinds of problem behaviors.

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