

The Varied Adult Psychopathologies of Children's Behavior Disorders

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Thirteen percent of the general population show the traits of emotional over-reactivity, emotional lability and impulsiveness that appear to be genetically transmitted. The troublesome manifestation of these traits can often be medically controlled, thereby reducing their costs to society.

Key Words: attention deficit disorder, conduct disorder, personality disorder, epidemiology, dysthymia, alcohol abuse

INTRODUCTION

The child guidance movement was astute when it first described an association between childhood behavioral problems and adult psychopathology. However, the movement then undertook the psychological treatment of childhood disorders, presuming that the right environmental manipulation would prevent psychiatric disorders in children. It was hoped that treating children would prevent subsequent adult psychopathology and behavior disorders. This has been the dream — and faulty reasoning — on which nearly all current mental health programs are based. In the past 60 years, no program has succeeded in making that dream come true (Shamsie 1981).

This paper outlines a different perspective on the association between childhood problems and adult psychopathology and proposes a set of solutions for realizing the dream of secondary prevention in some circumstances. This paper will address schizophrenic and manic depressive illnesses. However, it is important to recognize that the 13% of the population with behavior and personality disorders also includes patients with schizophrenia and manic depressive illness.

Lack of self-control and the three key traits

The cornerstone of this approach is a different understanding of childhood behavior disorders. These disorders are typified by a lack of self-control resulting from emotional lability, emotional over-reactivity and impulsiveness. The current term for these symptoms, attention deficit disorder (ADD), is an unfortunate and inappropriate label. It is one in

a long string of misnomers, which includes "hyperkinesis" and "minimal brain dysfunction." Our attempts to segregate these problems into attention deficit disorder, oppositional disorder, conduct disorder and major depressive reaction have only resulted in extensive diagnostic overlapping. As yet, this labeling convention has not supplied any guidance for treatment (Shamsie 1981; Riley 1984; Robbins 1966; Shapiro and Garfinkel 1986; Shekim et al 1986; Thomas et al 1970; Werry et al 1987; Reeves et al 1987; Newcomb et al 1986; Cantwell and Baker 1988). In my experience with 2,000 children consecutively admitted to a children's psychiatric unit in New York State, these diagnoses could not predict the children's responses to medication or to other treatments, nor did they provide much help regarding prognosis. The many diagnoses for a whole range of behavior disorders, and subsequent overlapping or conflicting therapies, can be channeled into a simpler, more effective treatment. What we have found is that the majority of patients improve with medication, their specific diagnoses notwithstanding.

In addition to looking at these behavior disorders in terms of the three key traits, early recognition and treatment of childhood behavior disorders can offer a very cost-effective method of reducing adult behavior disorders. The social problems arising from these disorders include child and spouse abuse, criminal behavior, alcoholism, failure in school, accidents and many other conditions that incur enormous costs to society. Early recognition and treatment of behavior disorders means that we can also lessen juvenile delinquency, teenage pregnancy, learning disabilities, accidents and school dropout problems.

The data suggest that certain genetically transmitted, neurobiochemical abnormalities (Jensen et al 1988; Cantwell

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1972; Jessor et al 1980; Deykin et al 1987; Wheeler et al 1948; Marrisar and Stewart 1973) in the nucleus accumbens (Myers et al 1982; Murphy et al 1982) in the frontal lobe are at the root of these behavior disorders. In fact, two independent studies on rats — one breeding for over-reactivity and one in which they were bred for spontaneous alcoholism — came up with identical neurochemical findings, indicating that the traits are not only genetically transmitted but also biologically related. When combined with other genetic factors and different environmental experiences, these abnormalities may produce very divergent pictures of psychopathology. However, the three key traits are common to them and can generally be thought of as a lack of self-control.

The lack of self-control in these patients can manifest itself in many ways: impulsive eating, aggression under stress, inability to deal with unstructured time, inability to cope with postponed gratification, inability to fall asleep, over-reaction to noise, poor stress tolerance, a labile autonomic system, lability of mood leading to acute depression and impulsive suicidal gestures, severe distractibility, difficulty in finishing tasks, taking inappropriate shortcuts to achieve goals, criminal activity, drug abuse, alcohol abuse and sexual promiscuity. This lack of self-control also interferes with the patient's ability to cope with other problems, such as diabetes or pain. These patients show unusual responses to many types of drugs and can have extreme physiological reactions, such as a high fever.

Misconceptions about childhood behavior disorders

Childhood behavior disorders not only appear in different guises, but are far more widespread and long-lived than is generally supposed. Prevalence studies (Howell et al 1985; Lambert et al 1978) indicate that 12% to 15% of a total population of children has these traits, to the extent that they negatively affect social and/or academic progress. Lambert et al (1978) conducted a prevalence study in Oakland, California elementary schools, using a patient and control group of 492 children whose progress was reported over three years. Huessy and Howell (1985) followed 500 second graders (all the second graders in an area of Northwestern Vermont) until they were 21 years old. It was found that although there were occasional short-term problems, the majority of problems reported by teachers and other observers lasted the entire 15 years and could be attributed to 13% of the children.

It is unfortunate that only five percent of the child population meet the DSM-III criteria for a diagnosis of ADD. Clearly those standards do not address the larger percentage of children with behavioral disturbances. Because a diagnosis of ADD is considered a requirement for pharmacotherapy, the seven percent to ten percent of children who do not meet the strict criteria for it, but who do have the problem with its other manifestations, are deprived of inexpensive, effective treatment.

There are other misconceptions about these childhood behavior disorders. First, they are not just childhood problems, they are lifetime problems. Recent studies by Garfinkel (1985) have indicated that 80% of the children diagnosed with ADD warrant a similar diagnosis in early adulthood. Garfinkel concluded this by conducting a follow-up study of many of the patients treated by Bradley and Denhoff, who were early pioneers in the pharmacotherapy of behavior problems. The commonly held assumption that ADD disappears in adolescence has turned out to be false. The hyperactivity may disappear, but the lability, over-reactivity and impulsiveness — that is, the lack of self-control — do not (Lambert et al 1987; Bellack 1977; Bellack 1985; Huessy et al 1979; Huessy and Howell 1985; Schulsinger et al 1986; Wood et al 1983; Weiss et al 1985; Boleman et al 1983). The routine termination of drug therapy for behavior disorders in early adolescence often accounts for the disappointing long-term results of pharmacotherapy.

In addition, our studies suggest that the reason for the apparent difference in the prevalence of behavior disorders in the two sexes in childhood (behavioral studies indicate ratios ranging from 1:6 to 1:12 girls to boys with ADD traits, to 1:12 girls with ADD traits) is that behavior problems in girls do not become evident until after puberty (Huessy and Howell 1988). Actually, behavior disorders appear with equal total frequency among adolescent and adult males and females (Cloninger et al 1986; Spalt 1980; Regier et al 1984). The large prevalence study conducted by the National Institute for Mental Health (NIMH), with six catchment areas, found that the adult diagnoses — which seem to be related to childhood behavior disorders, according to many epidemiological studies — have a practically equivalent prevalence when the two genders are compared (see Table 1).

Behavior disorders, families and gender

The relationship between these varied diagnoses has been reported repeatedly in studies of a wide variety of familial phenomena. Studies of family trees have shown that within specific families the diagnoses were different between the men and women. The same genetic mechanism that shows up as histrionic behavior in females shows up as sociopathy in males. Studies of diagnosed sociopaths have shown that they had a higher than average number of sociopathic male relatives and histrionic and dysthymic female relatives. Studies of histrionic females have shown that they have a higher than average number of histrionic female relatives and sociopathic and alcoholic male relatives. Studies of boys with behavior disorders have found that they have a higher than average number of sociopathic and alcoholic male relatives and histrionic and dysthymic female relatives. (Some studies have also shown that families with these behavior and personality disorders have an unusually high prevalence rate of somatization disorder.) There have also been large-scale adoption studies, especially in Scandinavia, which support

the existence of an association between sociopathy and histrionics.

For most adult women with behavior disorders, the disorder has not been considered problematic until after puberty, when their lability, over-reaction and impulsiveness show up as histrionic and unstable behavior, loss of academic motivation and various forms of impulsive acting-out. The same symptoms are interpreted differently in the two sexes because the problem appears earlier in males.

In support of this, Edith Hendley (1986) has bred a special strain of rats with "behavior disorders." The young female rats appear normal until after puberty, when their problems become more intense than those of the males. Women with these disorders appear physiologically to be more sensitive to fluid retention before their menses and are at greater risk of developing premenstrual syndrome. It is not known how the female sex hormones relate to these problems. In Elliott's paper (1982) on dyscontrol, which he considers to be an adult form of ADD, all of the episodes in females occurred during the premenstrual period.

In my clinical experience, the majority of girls with behavior disorders have a normal childhood up to age 12 and begin adolescence with an adequate self-image. The boys, however, lack a positive self-image, since they experience predominantly negative feedback from infancy or, at the latest, by second grade. The very different natural history of the disorder between the two sexes may account for the fact that the disorder reveals itself in sociopathic symptoms in males and in hysterical symptoms in females (Downs and Simon 1954; Haskell 1953; Ingham 1949; Lilienfeld et al 1986).

Lilienfeld et al (1986) studied 250 patients (and their families) with the diagnoses of antisocial personality disorder, somatization disorder and histrionic personality disorder. There was a diagnostic overlap in symptoms. Lilienfeld et al suggest that the histrionic traits are basic and that they lead to sociopathic disorder in males and somatization disorder in females. They further suggest that each of the three diagnoses may represent a different stage or alternative manifestation in the same patient.

Problem child, problem adult

The outstanding characteristics of childhood behavior disorders — emotional over-reactivity, emotional lability and impulsiveness — are symptoms of many adult diagnoses. While adult psychopathology has traditionally been seen as something that emerges in late adolescence, some of it, as well as most adult personality disorders, is merely a continuation of childhood behavior disorders. Specifically, the majority of these adult problems involve diagnoses that, in turn, are directly related to childhood problems.

Catchment-area studies sponsored by the NIMH have found that 12% of the general adult population, both men and women, meet the criteria for such diagnoses as alcoholism, phobia, dysthymia, obsessions and antisocial behavior (see

Table 1

The prevalence of childhood behavior disorders at age eight and the related adult diagnoses in males and females^a

	Males (%)	Females (%)
Children	13.0	2.0
Adults – disorders related to ADD		
Alcohol abuse	4.3	1.2
Phobias	0.1	0.2
Obsessions	2.8	5.8
Dysthymia	2.8	4.7
Antisocial	2.2	0.2
Total	12.2	12.1

^aWhen major mental illnesses are not included, there is a 12% rate of psychopathology in adults in both sexes. However, this is the case for only two percent of females, compared with 13% of males during childhood. Table compiled from data from the NIMH prevalence study by Regier et al (1984).

Table 1). These findings are consistent with those of prevalence studies which show traits involving a lack of self-control among 12% to 15% of the children. Data from the Vermont 15-year total population study by Huessy (1985) of second-graders indicate that 13% of the boys exhibit these traits to the extent that the traits negatively affect their futures. These behavioral traits are distributed along a standard distribution curve, and both ends of the curve have predictive power (Huessy 1975) — one positive, the other negative. An individual's location on this distribution curve is determined by the interaction between genetic and environmental factors. For example, a brain injury may make a person "hyper," but only if he or she were on the "hyper" side of the curve to begin with.

Behavior disorders and the driven person

Another manifestation of this lack of self-control may take a different, if more socially acceptable, form. At the 1985 meeting of the American Psychiatric Association, a group from Stanford reported on the psychological characteristics and childhood histories of individuals with type A personalities. Their description (Nitza and Field 1986; Whalen and Henker in press) of over-reaction and childhood behavioral problems appears very similar to the description of the kind of patients being discussed in this paper.

There is further evidence linking the three key behavior disorder traits with the type A personality. Lundberg (1986) reported an association between childhood aggressiveness, impatience and competitiveness (the traits of the type A personality) and elevated blood pressure and greater catecholamine reactivity. This relationship was also described by Falkner and Raganesi (1986). Edith Hendley also found an association in "behavior disordered" rats with hypertension in their behavioral genetics.

The same traits, in the form of less social acceptability, have shown up in a study by the School of Public Health at

the University of California at Berkeley (Weisner 1985). The subjects were people ordered by the court to attend a treatment program for drunken drivers. The predominant traits ascribed to them match the profile of behavior disorder. That profile also matched that of drivers at risk reported in a University of Wisconsin study of auto accidents and high-risk drivers. Other forms of the personality disorders account for a great many of our social costs. Accidental poisonings (Rodrigues and Sattin 1979) and general accidental injuries involve a disproportionate number of individuals with the traits of over-reaction and impulsiveness. In addition, these people face a higher mortality rate and are more likely than expected to be alcoholics and heavy smokers (habits which further contribute to their higher rates of mortality).

Furthermore, these traits are more common than expected among the poor. People with these traits tend to do poorly in school and are prone to both alcoholism and criminal behavior. These and similar difficulties make them more likely to have a lower socioeconomic status. Since this disorder appears to run in families, the children often have the same problems. The cycle of poverty continues because these people usually have no way of leaving their social groups. This contributes to the prevalence of problems in inner-city schools.

Changing our assumptions about families and behavior problems

There is a common thread of lack of self-control in behavior disorders involving families. A lack of self-control is the key trait in sexual abuse and other forms of domestic violence. We also know that a large percentage of child abuse cases occur in families where one or both parents lack adequate self-control, especially when they are under stress.

The familial loading of these behavior problems has several interrelated effects: it increases the likelihood that difficult children will be born into these families; and such children will cause severe stress to a parent who already has inadequate self-control — a parent out of control is a candidate for inflicting abuse on their children or spouse.

We have readily assumed that negative environmental conditions found in association with childhood psychopathology bear a causal relationship to the pathology. When physically or sexually abused children show signs of instability, we assume that these were caused by the abuse. If we begin to look at the cycle of abuse not in terms of specific abusive patterns which, in turn, causes abusive behavior, but rather in terms of inadequate self-control which is passed on from generation to generation, the picture begins to change.

The picture is different, too, if we change the way we look at another commonly held assumption. George Phillips conducted a follow-up study of premature infants who, because they required surgery, spent the first six to 12 months of their lives in hospitals, not at home with the constant nurturing of their mothers. He had hoped to document the importance of early mother-child interaction in later devel-

opment, assuming that in the absence of mothering these children suffered psychological damage. However, he was unable to document any psychological defects in these children as a group. This observation ran so much against everything he believed that the paper has never been published.

Fortunately, we have other reports of the ability of children to survive traumatic early experiences (Special Section on Child Survivors of the Holocaust, *Journal of the American Academy of Child and Adolescent Psychiatry* (1985)). There are many children who grew up in concentration camps, or who were hidden in the forests of Poland and Russia, who are now grown up and do not as a group show signs of psychopathology. The children who showed the traits described in this paper (that is, who lacked self-control) probably did not survive.

Our assumptions about divorce also change if we look at these interrelated cases of lack of self-control as an explanation of many of the problems surrounding divorce. It is true that a large percentage of delinquent youth come from broken homes, but the divorces themselves do not cause delinquency, as many researchers have concluded. Instead, a lack of self-control on the part of one or both parents reduces the parent's tolerance for the stress of rearing a child who has inherited the same problem. This stress in turn sets parent against parent, a significant factor in divorce. The children's inherited behavior disorders — not the stresses of divorce — could account for the high rate of delinquency. This explanation is at odds with the interpretation of the data in a recent study of the children of divorced parents (Wallenstein 1984). Suggesting that the stress of divorce caused the behavior problems, the study failed to consider the fact that parents who divorce are more likely to suffer from a psychiatric disorder. The familial loading of behavior disorders could also account for some of the greater numbers of problem children in divorced families. The study found that the sons of divorced parents developed behavior problems at a much earlier age than the daughters. The different natural history of behavior disorders in the two sexes (described earlier in this paper) rather than different psychodynamics, likely accounts for this (Block et al 1986).

The notion that delinquency is learned from one or both parents is largely false. Again, the problem is lack of self-control, which is inherited. Adoption studies conducted in the United States and Denmark reinforce this point (Cadoret 1986; Cadoret et al 1983; Cadoret et al 1987). The offspring of delinquents or criminals, relinquished for adoption as infants, develop these same problems as often as those who were not given up for adoption. Independent studies on alcoholism and adoption show the same pattern (Goodwin et al 1975). In a study of a cohort of all the births occurring during a two-year period in Denmark, it was found that 14 of the subjects, who were age 30 and had been adopted, had been diagnosed with alcoholism. The researchers also carefully identified a control group. Of the 14 alcoholic subjects,

ten had a biological parent who had been alcoholic, whereas no alcoholic parents were found in the control group.

Adoption studies reveal more evidence of familial loading and its other social dimensions. Adoptees make up approximately one percent of the national population; yet the adolescent unit of a private psychiatric hospital reported that 28% of its patients were adoptees (Senior and Himadi 1985; Rogers et al 1988). The rate was seven percent in a New York State hospital unit, which serves a socio-economically depressed area and is therefore less likely to have a high proportion of adoptees. Behavior disorders are more common among adopted children because they inherit the impulsiveness of their natural parents. That is, the trait is likely to have led the young men to sexual irresponsibility and the young women to unexpected pregnancy, as parents.

Changing behavior through education: another dream beginning to fade

If we assume that the lack of self-control is at the root of behavior problems and their social manifestations, serious questions can be raised about some of the claims made in support of educational programs. Robertson (1980), in a study of teenage drivers and auto accidents, highlighted the fact that preventive health education programs did not affect subjects who have behavioral problems. For example, drivers' education does not reduce the rate of accidents caused by impulsive behavior. Similarly, education on the appropriate use of contraceptives does not affect the impulsive sexual activity of adolescents with ADD. Many programs aimed at reducing auto accidents or unwanted pregnancies, of course, have been initiated because of a belief that with enough education, people will act responsibly. The problem in both cases is not a lack of information, but rather an inability to act on the basis of that information. Robertson's study, in fact, shows a decrease in adolescent highway fatalities among adolescents in areas where driver education was stopped. The parents found it easier to keep their impulsive sons off the road when they did not have a certificate saying they were good drivers.

Where research has failed

Since the prevalence of childhood problems in the general population has not been fully recognized, the pervasiveness of these traits and their effects have been ignored in and have contaminated both social and psychiatric research. The frequent presence of these characteristics implies that these traits may be a significant factor in other pathologies under study. Regrettably, researchers have ignored the possible presence of these characteristics in adults. The study of children of divorced parents, as mentioned earlier, is not an unusual example of research not only having made the wrong assumptions, but also drawing the wrong conclusions because the genetic factor of impulsiveness was not considered.

Many results of studies of major social problems have been misinterpreted because researchers have not considered

the degree to which behavior disorders have influenced outcome.

The genetic loading of behavior disorders has great effect on the interpretation of any family studies. More than 50% of people diagnosed with childhood disorders have a direct blood relative with a related disorder. Therefore, if control groups in studies on family problems are not evaluated for the presence or absence of such disorders, research results may be distorted.

Diagnostic overlap

The overlap of undiagnosed behavior and personality disorders with other diagnosed disorders also has serious ramifications for studies using patient and control groups (unless both groups are screened for these behavior disorders.) Table 2 shows the similarities and differences between two groups of adult patients, all of whom met the DSM-III criteria for major depressive reaction. One group was selected because antidepressant medication produced almost immediate improvement. The other group was matched for age, sex, etc., and they required the usual two to three weeks before any improvement was seen.

On some items of personal history, Table 2 shows differences of 100%. Those who responded rapidly to medication tended to have a history of childhood behavior disorders. (They responded to antidepressants in the same way as children with behavioral problems.) The patients with depression who responded slowly had a childhood which was unusually free of disorder. The divergent personal histories show clearly how the two conditions, if unidentified, can distort findings. But the criteria we used for the diagnosis of major depressive reaction do not allow us to distinguish between these two very different groups of patients (Fras 1987).

Moravcsik (1894) reported diagnostic overlap, as well as genetic relationships, between sociopathy, histrionic personality and somatization disorder. Diagnostic overlap has also been reported among patients with borderline, histrionic, antisocial and narcissistic disorders.

It may be necessary to revise our methods of describing social pathologies to reflect the fact that childhood disorders are at the root of many of them, that the disorders are widespread, and that they have strong family histories.

Reducing the costs to society with appropriate education

Our failure to recognize these traits as a leading cause of adult psychopathology robs us of an effective means of controlling its subsequent costs to society. One example is the costs arising from delayed stress syndrome, seen in Vietnam veterans. Generally, people who went to college avoided the draft; the boys who did not do well in high school were drafted or, if they had been convicted of a first offense, opted to join the service instead of going to jail. Therefore, among the Vietnam-era draftees and enlistees were a disproportionately large number of individuals with behavioral or learning problems. As such, their proclivity for suffering

Table 2
Summary of Cohen's findings on adults with depression and aggression^d

	Unipolar depression plus aggression		Unipolar depression alone		p-value ^c
	n	%	n	%	
Sex					
Male	5		5		
Female	7		7		
Mean age	29.8		30.2		
Family history (n = 12)					
Violence/aggression	7	58.3	0	0.0	0.01
Poor school performance	6	50.0	1	8.3	0.05
Hyperkinetic relatives	4	33.3	0	0.0	0.05
Depression	7	58.3	7	58.3	
Homosexual, antisocial, eccentric	4	33.3	2	16.7	
Alcohol abuse	9	75.0	6	50.0	
Psychoses	2	16.7	3	25.0	
Childhood history (n = 12)					
Diagnosis of hyperkinesis	0	0.0	0	0.0	
Inability to sit still, fighting, poor concentration, dropout, failure	11	91.7	0	0.0	0.005
Symptoms/signs in mental status (n = 12)					
Hyperactive	11	91.7	0	0.0	0.005
Distractible	11	91.7	5	41.7	0.025
Impulsive	12	100.0	1	8.3	0.005
Temper/aggression	12	100.0	0	0.0	0.005
Antisocial	7	58.3	1	8.3	0.025
Alcohol abuse	10	83.3	4	33.3	0.025
Mood swings, depression	12	100.0	12	100.0	
Insomnia (0 to two hours)	8	66.7	3	25.0	0.05
Amitriptyline HCl (100 to 250 mg) ^a	8	80.0	8	66.7	
Imipramine HCl (40 to 200 mg) ^a	3	30.0	8	66.7	NS
Less than seven days for remissions of symptoms (n = 10)	10	100.0	0 ^b	0.0	0.005
Sleep induction and initial depression while on medication	8	80.0	1	8.3	0.025
Decrease in BPRS score	19.6	one week	16.9	six weeks	

^afor unipolar depression plus aggression n = 10, for unipolar depression alone n = 12; ^bmean = 5.0 weeks; range = 1 to 8 eight weeks; one patient had no benefit; ^cp-values based on the Fisher exact probability test; ^ddata taken from Huessy et al (1979)

from a problem, such as delayed stress syndrome was built in, before they ever saw action in Vietnam. Many of these veterans may have been problem children whose subsequent difficulties as adults were aggravated, but not necessarily caused, by their experiences in Vietnam (Benedikt and Kolb 1986). Had they not been in Vietnam, they are likely to have

suffered from related problems as a result of other experiences in adulthood.

Rather than finding a new label for an old problem that may appear new because it is tied to a current event, we should devote our efforts to recognizing and treating childhood problems in a timely and appropriate way. This would

be a major step toward reducing the social and financial burdens that adult psychopathology places on our communities.

When used appropriately, medication can provide our subjects with control over their responses to daily situations and thus dramatically improve the quality of their lives. This has been documented repeatedly in children since 1937 (Bradley 1937) and in adults for the last 20 years (Ling and Davies 1952). The disappointing results in outcome studies of childhood treatment are largely the result of the mistaken cessation of therapy in early adolescence and the routine administration of stimulant therapy. Stimulants produce a continuously changing level of self-control (Huessy 1973), which contributes to the refusal to continue treatment. This latter can be avoided in the majority of patients with the proper use of antidepressants (Huessy and Ruoff 1984; Huessy 1973; Huessy 1984).

Although this treatment is available, current methods of diagnosis do not accurately identify disorders involving lack of self-control. As noted earlier, the prevalence of these disorders causes these undiagnosed disorders to overlap with all other diagnosed psychiatric and medical disorders. Failure to detect this overlap skews epidemiological studies and diagnoses and makes effective clinical treatment less likely.

When people with (unidentified) behavior disorders are treated for medical conditions, the treatment is usually impaired. Such patients are likely to exhibit unusual reactions to traditional treatments because their own biochemistry is unusual and they may have difficulty following directions. It is important to remember that more than ten percent of the population suffers from such disorders and that these people account for at least the same proportion of medical patients, if not more (because of the tendency of people with behavioral disorders to be involved in accidents, as discussed earlier). Barbiturates, for example, aggravate behavior disorders. Neurologists know well how some people with epilepsy, for example, show signs of behavior problems when they have been prescribed phenobarbital. Anesthetists have encountered the occasional patient who shows excitement during the induction of barbiturate anesthesia. An adolescent diabetic who is also psychologically unstable will be difficult to treat with traditional therapy (Jacobson et al 1987). And if a labile and impulsive patient has suffered a major injury, rehabilitation is more difficult than for the person who does not have those traits.

No single drug of choice

Research in pharmacology has been dominated by the assumption that there is one drug of choice to treat behavior disorders. Since there are no doubt many other neurophysiological functions under genetic control, and since there is endless genetic variation, we should instead assume that different constellations of these factors lead to a variety of different responses to drugs. We have found that antidepressants (administered in low doses for the treatment of behavior

and personality disorders) are neither interchangeable nor predictable. And while the stimulant methylphenidate is a broad-spectrum drug which is effective for a large number of patients, it is not as effective as more narrow-spectrum drugs for specific cases. The patient on methylphenidate deals with being without medication during some hours each day, and with changing levels of effectiveness during the remaining hours; but twice-a-day dosage of an antidepressant produces an even effect throughout a 24-hour period. We now use imipramine, amitriptyline, trazadone, bupropion, amoxapine and amantadine (Gualtieri 1990), in that order; the first three are the drug of choice for more patients than the remaining ones.

In the study from which Table 2 was derived, two broad categories, each with two subgroups, appear among subjects meeting the DSM-III criteria for major depression (Regier et al 1984). The first category is made up of patients who responded best to imipramine or amitriptyline after two to three weeks. The second category consists of patients who responded immediately to either imipramine or amitriptyline. Because of their responses, the latter group obviously comprises not patients with major depression, but adults who had behavior disorders during childhood. (The picture is complicated because some of the patients will belong to two of these subgroups and in varied combinations.) One might surmise that hereditary factors involved in these illnesses play a role in these specific drug responses; this might explain why imipramine and amitriptyline are not interchangeable for the treatment of both major depression and dysthymia.

Effectiveness of antidepressants in treating behavior disorders

Medication is an inexpensive and effective treatment for disorders that are closely linked to the social pathologies described earlier. Both children and adults with behavior and personality disorders respond positively to small doses of antidepressants, a finding which now receives a great deal of support in the literature (Gualtieri 1990; Zitrim 1978). Diagnostic confusion has emerged from this use of antidepressants, however. The number of reports about patients with various psychiatric disorders responding to antidepressants led Hudson and Pope (1990) to search the literature about such responses and to suggest the existence of "affective spectrum disorder." However, the studies they reviewed gave almost no information about the length of time required for the antidepressant to produce its benefit. It is this key factor, the response time, that can tell us which illness is successfully being treated with antidepressants. We know, for example, that when an impulsive child responds in one hour to 10 mg of imipramine, we are dealing with a very different biochemical mechanism than that of an adult depressive who improves after 14 or more days on 150 mg of imipramine per day. And when an adult with depression with \$2 million in the bank is beside herself with worries about her finances, this is an affective illness of a very different

order of magnitude from the unhappiness a delinquent may express about the legal problems facing him or her. Clearly, they do not belong in the same spectrum of disorders, and the treatment should not be guided by the assumption that there is one spectrum.

A positive response to an antidepressant does not necessarily mean that we are dealing with an affective illness. Unhappy feelings do not warrant a diagnosis of affective illness. Unfortunately, both of these types of confusion are common and lead to the misinterpretation of research data (McElroy et al 1992; Mattes 1986a).

A positive response means achieving not just immediate improvement in a patient's behavior, but also ongoing regaining of self-control that the patient can recognize. Although a larger percentage of patients show a positive response to stimulants than to any of the commonly used antidepressants, the antidepressants, when they work, are superior in their effect and less likely to be rejected by the patient. One of the problems with commonly used stimulant therapy (methylphenidate or dextro-amphetamine) is that it produces continuously changing levels of self-control, making it very difficult to live a successful day-to-day life. The advantage of the antidepressants is that they produce an even effect through the day (24 hours). Particularly in the treatment of teenagers with behavior disorders, the absence of a continuously changing level of self-control helps prevent the patient from rejecting treatment.

The unanswered question: which medication to prescribe?

There are persuasive clinical reports of successful treatment of some cases with stimulants (Satterfield et al 1987; Huessy and Wright 1970), sedatives, minor and major tranquilizers, antidepressants, β blockers (Mattes 1986b), clonidine (Hunt 1987), caffeine, anticonvulsants (Evans et al 1987) and antihistamines. Given that such a wide variety of drugs have been successful, we might surmise that many biochemical variations are involved. So far, however, we know of no signs or symptoms that would properly indicate the drugs of choice before treatment.

We do not know what accounts for one of the differences between males and females with behavior disorders. It is very rare to find a female with a behavior disorder who does not respond to an antidepressant, whereas approximately 20% of the males do not respond and require treatment with stimulants. (This was our experience with the 2,000 children consecutively admitted over 12 years to a children's inpatient service at a state hospital.)

We need further, more detailed studies to determine the correct choice of drug in these cases. As noted earlier, the antidepressants are not interchangeable for the treatment of these disorders, and I know of no predictor to help the physician make a correct first choice. Not even methylphenidate and amphetamines are always interchangeable. What is the difference among the patients who respond to amitriptylene, trazodone and imipramine, and how do they

differ from those who respond only to stimulants? Rogeness et al (1984) have already identified one subgroup biochemically that needs to be treated with a combination of drugs. These are patients with a congenital absence of dopamine β -hydroxylase. Not only do certain patients respond differently to these drugs than they do to other drugs, but some reactions can be extreme. Full antidepressant dosage therapy may induce psychoses, especially in females, which subside as soon as the medication is stopped. All patients with behavior disorders have a low tolerance for stress and can have rapid psychotic decompensation when the patients are under stress. Bellack (1985) recently proposed a specific diagnosis of ADD psychosis as being discreet from schizophrenia. Typically, these psychoses resolve rapidly when the patient's stress is diminished.

The identification by drug response is crucial for further research. At present, double-blind studies compare methylphenidate and the antidepressants. Methylphenidate has been found to be superior because it helps a larger percentage of patients. But the antidepressants, when they work, produce a better result. In addition to giving the even effect (described earlier) over 24 hours, they also show no early-morning problems and no evening or sleep problems. The only valid double-blind study would first identify groups that responded to one of the antidepressants and then perform a double-blind comparison of the antidepressant and methylphenidate with that group (McElroy et al 1992).

The catch-22

Frequently, despite marked benefits from medication, the effects of years of maladaptation and an overwhelmingly negative self-image are impossible to overcome. While helping the patient to achieve a level of stability previously unattained, the new-found stability forces patients to confront both the maladaptation and the negative self-image. This is a sobering realization for the patients. Therefore, they often abandon their medication to get temporary relief from the recognition that they have caused those around them difficulty. The desire for relief is what draws many of them back to alcohol and drugs. In fact, dramatic improvement brought about by medication may produce a short-lived risk of suicide, because the patients face their own role in their problems and can no longer automatically blame others for all their problems.

The earlier in life treatment is begun, however, the greater the chance of success. Despite dramatic results with antidepressants among adults with behavior disorders, the pervasive poor self-image of these patients still takes years to overcome and makes treatment very difficult. Our epidemiological data suggest that these traits are readily identifiable and controllable, and that early control may prevent the secondary devastating consequences of a poor self-image, impaired education and inadequate social relationships. Behavior disorders contribute to social problems that range from alcoholism to criminal activity. And because of this, appro-

ropriate treatment would offer great benefits both to patients and society.

Workable prevention and treatment intervention programs can be established at relatively low cost. Such programs could include in-service training sessions for teachers, social workers, clinical psychologists and family doctors. These programs would enable front-line professionals to recognize the cardinal symptoms of emotional over-reaction, emotional lability and impulsivity. In brief one- or two-day sessions, physicians could be taught how to treat the identified patients who want to be treated. Such programs would also be cost-effective; they would require neither new professionals nor new treatment organizations. Pediatricians and family doctors could play a larger role in the treatment of behavior disorders. Even a ten percent to 20% reduction in all the disorders mentioned would produce tangible, significant savings in the costs to society and in personal pain.

CONCLUSION

As mentioned at the beginning of this paper, the early dream of the child guidance movement assumed that the prevention of many adult psychiatric disorders was possible through the psychological treatment of childhood disorders. After three or four generations of study, experimentation and diligent application of theoretical principles, this approach has failed. Of course, some other programs, such as those based on structured environments and exercise, have been successful to a limited degree. A structured environment, for example, can reduce impulsiveness, but only in that special setting, and the world around a patient generally is not sufficiently structured to meet his or her needs. It does not take scientific training to observe that even the "successful" adult with behavior disorders leads a limited life, driven by his or her need for structure and constant activity. This is seen in people who are workaholics, who are hard on their families or who, despite their apparent success, frequently end up abusing alcohol.

Current writings on the prevention of child psychopathology always call for more money for research and never mention the possible role of medication. The prejudice against the use of medication is strong and pervasive.

Generally, other non-medical treatment programs for all of the diagnoses we have mentioned, whether in childhood, adolescence or adulthood, have been outstanding in their failures. The treatments may be considered "safe" because they do not involve the use of medicine, but they cannot achieve the more than 90% effective rate that medication can achieve in all cases of behavior disorders. Medication does not provide a cure, but it does control the problems — and far less expensively than other therapies. With medication, treatment can take place in any environment, with the patient always in control and able to exercise free choice in conducting his or her daily life.

The reduction of symptoms with proper medication, even though its effect is temporary, reduces the potential for social and academic failure; it prevents to some degree a patient's poor self-image; it leaves open many more options for a patient's future; and it is effective in all settings. It is time to give medical treatment a fair chance at bettering the lives of people with behavior disorders and to reduce the negative impact of these disorders on society.

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