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Justin D. Call

Between 1895 and 1923 Freud postulated that psychoneuroses, sexual aberrations, character defects, and the disguised wishes of anxiety dreams all had their roots in "infantile" experience. Accordingly, many of his followers, along with some educators, believed that the true path to optimum mental health had been found. This theory has been described as "the original sin hypothesis." According to this hypothesis, what was necessary for either the treatment or the prevention of such disorders was the same; that is, the therapist was required to locate and resolve the original infantile source of such difficulty and create for the patient a more loving and less conflictual kind of experience in which the psyche could flourish. This prescription, however, has turned out to be over-simplistic and becomes, in effect, an obfuscating half-truth when applied exclusively to problems of human development.

Freud himself never espoused such a theory or remedy, for he was deeply mindful of the biological underpinnings of all mental functioning, both normal and abnormal. What he meant by "infantile" was often inexact; it could refer to any time from birth through prepuberty. He also recognized that conflict did not exist in isolated psychoneuroses, but was part of human existence itself. (Anna Freud has discussed these misconceptions of

psychoanalytic theory.) Freud was successful, however, in convincing most of western society that the infant and young child did possess a psyche in which complex fantasies and feelings were elaborated, even though most of what took place there was not readily accessible to parents, teachers, or other caretakers.

The idea of predicting long-term outcome from infantile experience alone is recognized to be full of so many difficult methodological issues that it is no longer seriously pursued. Benjamin has espoused short-term predictions that utilize outcome measures specified at the time predictions and underlying hypotheses are made. As our knowledge of average-expectable patterns of normal development for the first three years of life has increased over the past twenty-five years, short-term predictions and the theories they are based upon can be more scientifically stated and tested.

The idea that infants may show evidence of serious psychopathology during their development is still surprising and shocking to many people. While it is recognized that human babies are more vulnerable to certain kinds of infections, malignancies, gastrointestinal disorders, metabolic disturbances, dehydration, and electrolyte imbalance occasioned by stressful physical events, it is not generally acknowledged that the human infant also is capable of reacting and is vulnerable to the stresses of pain, violent arguments between parents, screaming, changes in caretakers, separation from the

primary caretaker, and sudden changes in living circumstances. What constitutes stress for an infant as opposed to an older child or an adult is even less well understood and acknowledged. The many rapid changes in normal development over the first three years of life necessitate examination of these issues as related to infants of a specific age. Age differences must be taken into account in order to accurately evaluate the impact of stress, loss, deprivation, and trauma. Thus, the only way in which an infant can be adequately evaluated is in the context of his own developmental path. Such paths are not the same for all infants. Boys are more vulnerable to caloric deficiencies than girls. Temperamental differences exist. What is stressful for one infant may not be to another of the same age because of these differences.

Many well-defined physical illnesses in infancy reflect disturbances in the caretaking environment; these illnesses respond favorably to improved relations between the infant and his caretakers and to the establishment of a more stable, predictable pattern of care-taking within a socially stable and reliable caretaking relationship. In fact, a number of illnesses previously thought to have specific physical etiology are now known to be associated primarily with disturbances in the biopsychosocial matrix surrounding normal development. Failure to thrive without organic cause is now known to be associated with attachment disorder of infancy. Projectile vomiting associated with pylorospasm improves dramatically with changes in feeding technique. Even so-called congenital pyloric stenosis responds to changes in

feeding style, as do rumination and psychogenic megacolon. Psychosocial dwarfism has been described by Kavanaugh and Mattsson.

Some Case Examples

Eczema

A four-month-old boy was admitted to the hospital with oozing eczema from head to foot, He was extremely irritable and cried most of the time. The eczema, at the time of admission to the hospital, had been unresponsive to non-milk nutritional supplements, such as soybean formula. His mother had a history of eczema and asthma, and eczema had occurred in a less severe form in an older sibling. Breast feeding had failed because of "attachment difficulties" and "inadequate milk supply." Eczema made its first appearance with the change from breast to formula feeding at four weeks, and continued when cow's milk was discontinued at three months. A specific nurse was assigned to provide all regular care. Soybean formula was continued. The nurse held him closely at feeding, played with him, and established well-reciprocated visual and vocal exchanges. At this point the eczema began improving rapidly.

Comment

While eczema occurs in babies with a known hereditary allergic

diathesis to cow's milk, the onset and severity of the illness is known to be influenced by psychologically stressful situations that occur in the family and in the mother-infant relationship. A total estrangement had developed between this infant and his mother, even before the onset of eczema. Eczema is rarely seen in breastfed infants. The positive response to exclusive nursing care illustrates the significance and importance of closely coordinated reciprocal exchanges between the mothering figure and the infant in soothing and regulating the baby. Both physiological and emotional reciprocity is required. This usually occurs normally and without conscious thought or instruction. In this case, however, the process was derailed and had to be reconstructed.

Asthma

A nine-month-old boy was hospitalized because of bronchiolitis associated with croup. He clung desperately to his mother, who stayed with him in the croup tent. A year later, he was still clinging to his mother, and asthma had developed. The mother continued watchful anxiousness and close monitoring of breathing for signs of recurrent croup and asthma.

Comment

Approximately 50 percent of children who contract bronchiolitis after six months of age develop asthma by the age of two. Asthma is also frequently

associated with eczema. When it does occur, the mother-infant relationship is grossly distorted, with the infant showing what has now been described as attachment disorder of the symbiotic type. It is likely that the psychological factors that lead to asthma in these cases are set in motion by the parents' anxiety about their infant's health. Bronchiolitis with croup is a threatening illness that arouses the parents' concern about death. And while the infants recover, the parents often do not fully recover psychologically. They remain traumatized by the experience. This leads to a pathologically close symbiotic relationship with the child and a failure of both parent and child to proceed through the stages of separation-individuation. This psychological constellation renders the child vulnerable to asthmatic attacks precipitated by minor stress. Prevention could be effected by facilitating successful psychological convalescence of both parent and child.

Dog Bite

A twenty-month-old boy was bitten severely on the face by a German shepherd while standing in the driveway of his home with his mother by his side. He still remembered the incident twenty months later when he said, "Canis the dog bit me on the cheek because I was only one year old. He was a mean dog. He doesn't like people. I'm mad at Canis and when I grow up, I'll get a real gun with real bullets and shoot him. I want him to die. He took two bites with his big teeth." He began having nightmares three times a night following

the bite. This continued for the next twenty months. He showed stuttering for two months and clung desperately to his mother, showing severe separation anxiety. All of his thinking and play centered around dogs that bit and fear of dogs. He showed a very serious demeanor and seemed to gain very little pleasure in life. His favorite story was about how Louis Pasteur saved a boy bitten by a dog from rabies. Kevin was frightened of the billboard freeways advertising the movie *Jaws.*

Comment

Gislason and Call have studied three young children who were bitten severely by dogs when less than three years of age. The march of symptoms and constriction of personality in these children are similar to, but are a more severe form of, what has been described in children who have had tonsillectomies at less than three years of age. These dog-bitten children have been emotionally traumatized and show a severe form of infantile traumatic neurosis. They are highly subject to subsequent traumatic events and a distortion of personality development caused by the initial and subsequent traumas. The close relationship with the parent is caused by the traumas experienced by both child and parent. The child's normal development is distorted because of the extreme difficulty that these traumatized children show in going through the separation-individuation phases of development. Psychiatric treatment using play techniques and psychoeducational

approaches with the parent could, in all likelihood, be helpful to such children.

Psychogenic Megacolon

A little girl, eighteen months of age, appeared in the outpatient clinic with a large abdomen. Her mother reported that the difficulty began when she was an infant of only a few months. The mother observed that the child grunted a lot and developed a red face when pushing out a bowel movement. The mother thought her infant was constipated and reported this to the doctor. The doctor prescribed a small suppository. The grunting and red face continued. Enemas were then prescribed, which led to increased withholding of bowel movements. Finally, a chronic state of withholding and constipation developed. No spontaneous bowel movements occurred. Enemas, suppositories, and cathartics were now used regularly to produce bowel movements. Occasionally, a very large fecal mass was produced by the enemas. The child's appetite was poor; she subsisted mainly on milk and soft foods, and she did not use her teeth in biting food. Her nutrition was poor, her arms were spindly, and because of the large abdomen she was short of breath and became sedentary. A developmental history showed that she reached her motor landmarks at the usual time, although she was considered a quiet child by the age of one, and at eighteen months she did not speak. Her eyes were large and observant, and she had an anxious expression on her face. Her abdomen was found to be filled with fecal masses. The remainder of the

physical examination was normal. Radiographic and biopsy studies showed normal bowel activity and the presence of ganglion cells in the outer adventitial layers of the rectum and lower colon. The diagnosis was psychogenic megacolon with delayed expressive language function and infantile feeding pattern.

Comment

This diagnosis could have been made without radiographic or biopsy studies since the onset of the infant's constipation did not date back to birth but rather a few months after birth. Most healthy infants develop a red face when pushing out a bowel movement, but some parents are particularly anxious about bowel functioning and regard the red face, as this mother did, as an indication of abnormal distress. The mother herself had been constipated and had been subjected to enemas and cathartics all her life, and as an adult had used cathartics regularly. Thus, it is no surprise that she resorted to this method of producing a bowel movement in her infant. Doctors unwittingly collaborated with her. Thus, the mother's anal fixations were passed on to the child with whom she identified. The treatment in these cases requires discontinuation of all anally oriented treatment procedures, including enemas, cathartics, and suppositories. In addition, a reorientation of the parents to the more general needs of the child, together with an attempt to identify and resolve the sources of anal conflict in each of the parents and

between them, is necessary since they often collaborate with one another in an anal orientation to the child. In the course of such treatment, children do not get well all at once and continue to show exacerbations and remissions.

Modern Child Abuse

Infants and children throughout history have always been abused. Even in our present enlightened society the rights of infants and young children in regard to such issues as adoption, visitation, and custody are frequently ignored by the courts. The issue of spanking children in the schools is still being hotly debated. Discipline remains confused with punishment. The rediscovery of physical abuse of children at the hands of their parents began in 1946 when a child showing bilateral subdural hematomas of unknown origin was hospitalized at New York Hospital. A radiographic study of the abdomen was also carried out and, quite incidentally, it was observed that one of the arms showed an area of subperiosteal hemorrhage with new bone formation—telltale signs of a healing fracture. Dr. John Caffey suggested the possibility of a previously unrecognized traumatic fracture; and a more careful psychosocial history showed a strong presumption that the fracture had been caused by an abusing mother. This was, however, considered to be a rarity, and it was another fifteen years before the problem of physical abuse of children was clearly recognized as a small epidemic. In 1962, through the work of Dr. Henry Kempe, the problem was placed on the map of admitting

rooms and emergency rooms throughout the country. Eight years later another variant of child abuse was described: the shearing of the cerebral veins as they enter the superior longitudinal sinus. This was caused by the violent shaking of the infant by irate parents or babysitters who, when questioned closely, felt that spankings and shakings were justified because of defiance and disobedience by stubborn, frightened children who could not speak. Also included in this group were children who did not perform up to standards expected by their parents or babysitters or who could not or would not explain their misbehavior or stubborn refusal to conform to expectations.

Comment

In these cases, a high level of moral accountability is expected by the parents of immature infants and children long before meaningful communication is possible. Studies of the parents by Steele and others have shown that abusing parents are often reenacting their own abuse as children, motivated to do so by a rigid, demanding, and cruel conscience acquired through identification with their own demanding parents. Child abuse is only one of the many parent-child difficulties showing the non-genetic transmission of psychopathological behavior from generation to generation. The passage of other psychopathological child-rearing patterns from one generation to another has also been observed in children showing psychogenic megacolon, attitudes toward separation, giving the child over to

the care of others, feeding difficulties, anorexia nervosa, delinquency, and environmental retardation.

Alternative Pathways of Mental Development Demonstrated by Physically Handicapped Children

Until 1941 rubella, or German measles, was considered an unimportant minor illness, significant only as a part of the differential diagnosis for rashes. No significant complications were said to exist with rubella, which often went undiagnosed because of the mild respiratory symptoms and the often unrecognized reddish-brown granular rash appearing on the upper parts of the body and face. This picture for rubella changed dramatically in 1951 when Dr. N. M. Gregg, an Australian family practitioner, observed a much higher incidence of congenital corneal ulcers in newborn infants whose mothers had become pregnant during the rubella epidemic of that year. All of the mothers whose infants showed corneal ulcers had contracted rubella in the first three months of the pregnancy, though only half of these women had been diagnosed as having contracted rubella during the pregnancy. Gregg reasoned that the fetuses were infected in the first three months, but not subsequently. It was later shown that the rubella infants not only showed corneal ulcers, but also were frequently deaf, had other central nervous system deficits causing sensorimotor difficulties, and had a high incidence of congenital heart disease —all occurring in various degrees and combinations. Rubella children were

also frequently considered mentally retarded. But the way in which such multi-handicapped children developed was not adequately studied until Stella Chess, a child psychiatrist in New York City, began reporting her findings on 235 youngsters, victims of a 1964 worldwide rubella epidemic, whom she began studying when they were two years old. Development showed an overall slowness during the first two years of life, with concomitant slowing of language, motor, and sensorimotor functions. One-third of the children were diagnosed as showing various degrees of mental retardation during the preschool period, while only one-fourth showed evidence of mental retardation at ages eight and nine. Thus, a significant number of such children at all levels of retarded mental development showed considerable improvement and moved into the normal ranges of intellectual functioning. The IQs of the non-retarded children also showed progressive increases as they entered the school-age period. Detailed case studies of a number of the children who showed such improvement demonstrated that they came through a diverse and roundabout pattern to normal school functioning, often pioneering new territory in the acquisition of language, social development, and learning—thereby affirming the inherent plasticity of human brain function in the young child.

All handicaps can be very discouraging and stressful for parents who have both consciously and unconsciously expected to have a perfect child. The marriages in these families and the siblings of families with a severely

handicapped child often become seriously stressed. Some siblings, for example, become pseudo-mature in their development. Even physicians become discouraged in handling multiply handicapped children, and specialized programs with a specially trained staff should be set up to meet these children's needs. However, many parents do not find their way to these programs and many communities do not have specialized rehabilitation programs for such children. When these programs are available, however, such children may have a rather successful convalescence. This acts as an encouragement to the parents to remain involved and committed to the development of their children; and the long-term follow-up of such children is quite good when adequate care has been provided.

Comment

This and many other pieces of clinical data suggest that the diagnosis of mental retardation should not be made on very young children showing delayed mental and motor functioning, since such a diagnosis carries with it a very bad prognosis and sets up the expectancy of poor performance, which may then become a self-fulfilling prophesy, the so-called Pygmalion effect. Similar individual-specific roads to cognitive language and social functioning have been demonstrated for (1) children with congenital heart disease who had corrective surgery, (2) children who contracted polio before the days of the Salk vaccine; and (3) children with rheumatic fever and with chronic

kidney disease. Most recently, Selma Fraiberg's studies of blind children have demonstrated similar plasticity. Eleanor Galenson's and Hilda Schlessinger's studies of deaf children have revealed the importance of the integration of many elements of the total communication system for a child who has a severe sensory defect. Such integration aids in language formation, concept formation, intelligence, social development, and learning skills. Many such children often become late bloomers and manage to make up for what they have missed in earlier years both in educational and social development.

Autistic Behavior in Early Infancy

The normal child of two and one-half years of age begins to show individual-specific personality patterns in his behavior. He becomes a "little character." Such trends are evident by the way he shows his emotions: for example, in his speech, smiling, facial and bodily expression, and bodily reactions. He responds in a comprehensible way to the emotions of others. His interests and curiosity expand as his experience of the world expands. A normal child of two and one-half years expresses his likes and dislikes directly; he utilizes language, affects, mimicry, and bodily posture, all in a smoothly coordinated and usually predictable way to show that he thinks about what is happening to him from within (regarding his wishes, fears, and feelings) and from without. A stage of "normal echolalia" is found in the language development of non-autistic children.

In striking contrast to the normal child is the two and one-half-year-old child who withdraws from others, who fails to establish eye contact, who shows highly ritualistic, unconventional play that is difficult to understand and respond to, who demonstrates both hypersensitivity and insensitivity at various times to visual and auditory stimuli, who relates to his own body and to others in a fragmentary, transient, mechanical way, who uses a few strange, mechanical sounds in place of speech or shows echolalic speech without meaningful contextual reference, and who uses people as if they were mechanical objects. This child does not respond to the usual psychologic testing. He often gives the overall impression of being retarded and sets up a highly controlled, nonhuman environment for himself. He invests this mechanical world with his interest, concern, and love; he becomes attached to things, he identifies parts of himself with inanimate objects and fails to distinguish clearly between his own body boundaries as he relates to others and the inanimate world. Eating and sleeping patterns are highly idiosyncratic, and changes in these idiosyncratic routines or in aspects of the nonhuman environment often induce more severely regressive behaviors. Such children are commonly called “autistic.”

Comment

It is now possible to partially reconstruct the early developmental history of children showing autistic behavior. Information, for example, can be

derived from the developmental histories of such children, from the direct observation of infants showing such behavior at an earlier age, and from a review of family films. The earliest forms of autistic behavior can thus be identified within six different age groups up to the age of two and one-half, taking into account the average-expectable behaviors of those ages. It is clear from observing the natural history of the illness that the earliest signs of autistic behavior are the most subtle. Once the syndrome becomes fully established, however, the serious distortion of development that characterizes autism is so compelling in its organization that all subsequent developmental aspects of the child are crystallized around this central autistic structure. Thus, no matter what original etiologic factors may have played a role in the syndrome, the child's own development and the responses of caretakers are dominantly organized around the pathology rather than the potential for normal development. Treatment of these very young children and prevention has been discussed elsewhere, and there is evidence that early treatment does, in fact, prevent the later sequelae of the illness.

Infantile Substrate of Borderline Functioning

Matthew seemed normal at birth and there were no complications during pregnancy or delivery. At age three and one-half weeks he began turning away from his mother during feeding and making all the positive social responses toward his father. Matthew's mother had a series of

psychotic episodes beginning at the time of the breakup of the marriage when the child was thirteen months of age. Consequently, Matthew did not receive a steady home situation until he was about seven, at which time he suffered from nightmares, sleepwalking, enuresis, and retarded psychosocial and intellectual development. His speech was unclear, and he had not learned much in school, having had to repeat kindergarten. However, he responded positively to the new steady home situation, and by young adolescence, judging by his overt behavior, was functioning normally in all areas. His inner fantasy life, however, was still chaotic and he was unable to make friends. He continued appearing well until about age seventeen when his foster father became discouraged with his poor performance in science subjects in high school and presented him with an ultimatum. Matthew responded with regressive, withdrawn behavior. He became zombielike in his attitudes and appearances, he seemed transfixed by the television set and, at times, drifted off into an autistic world of his own. I saw him again at age eighteen and one-half. He responded rapidly to supportive psychotherapy and began doing better in school. However, his inner psychic life was still fluidly organized and he had no interest whatever in social development or in girls.

Comment

In light of his earlier history, Matthew was able to function better than might have been expected. However, the underlying vulnerability to psychotic

functioning was clearly revealed during his regression in adolescence. He shows what is commonly known as the "borderline syndrome." While the effects of his earlier trauma and deprivation experiences were covered over by acceptable behavior for a good period of time, his inner vulnerability eventually revealed itself. Academic performance in school, conforming behavior, and absence of delinquency are insufficient criteria to assume healthy psychological functioning.

This rambling visit to the troubled land of infancy as seen through the eyes of the pediatrician and psychiatrist is *meant* to be alarming. Infancy is not synonymous with bliss. Nor does the capacity to impregnate and to conceive bear upon the capacity to be a parent. The either-or cause-and-effect determinism, raging as the nature-nurture controversy, is obsolete and non-generative when imposed upon the real world of infancy. The environment of the cell is as important as the genetic code in ordering the ontogeny of enzyme systems. Maturation and experience are codetermined. The timing of events or the absence of critical substrate, whether cellular, environmental, or intrapsychic, plays a significant role during the whole course of development from fetal life through old age.

Infants show evidence of suffering from psychic as well as from physical trauma. Why has this lesson been so difficult to comprehend? The onset of language does not mark the onset of the capacity to think and to feel. Distress,

neglect, abuse, and fortuitous circumstance all influence the post-natal development of the human fetal brain as well as the growing mind of the child.

I have outlined elsewhere average-expectable normal developmental sequences in infant behavior as distinguished from parental worries, including a description of symptomatic abnormal behavior within seven different age ranges, from birth to age three. These symptomatic patterns may serve as a checklist for evidence of psychological difficulty. However, any symptom must be viewed developmentally and in the context of positive developmental achievements and capacities.

Some Misconceptions and New Findings

Our present knowledge of infant mental development can be divided broadly into two areas: (1) the clarification of misconceptions, and (2) new discoveries. The present excitement and progress in the field began, I believe, with a paper by Dr. Peter Wolff entitled "Observations on Newborn Infants," published in 1959. Wolff demonstrated that newborn behavior made sense, was consistent, replicable, and was thus predictable when the behavior of the infant was cross-correlated with the infant's state of arousal. Wolff defined six separate states: regular sleep, irregular sleep, drowsy, awake active, awake inactive, and crying. Irregular sleep was cross-correlated with rapid eye

movement sleep. Within each of these states, various other behaviors were universally and predictably observable; for example, startles occurred only in regular sleep. During the awake attentive state the infant was indeed capable of following objects visually. Most smiling, Emde discovered, occurred during rapid eye movement sleep. The infant's behavioral responses became disorganized only during loud crying, not soft crying. Since 1959, all systematic observations of infants have considered their biobehavioral states as a primary variable. Recently, Wolff and Sander have begun to investigate the way in which behavioral states themselves are organized. Behavioral states observed in the newborn become further differentiated and may be the basis of subsequent moods and emotions in the course of the mothering figure's responses to them. The conception of the infant as a reflexly organized, passive, drive-organized creature with only random movements has given way to a picture of the infant as an active, competent individual, capable of initiating reciprocity with his mother and setting in motion the mother's caretaking responses to the infant. Thus, the infant becomes an active participant in the architecture of his own experience. He is considered capable of inspiring his caretakers to provide those elements of experience required for his own ongoing brain maturation. The human infant is born with a "fetal brain" that continues its rapid development over the first two years of life, and then develops at a somewhat slower rate through the age of twelve. The actual number of neurons doubles in the first two years of life. Thus,

brain development itself, by virtue of the infant's dependency during the period of brain maturation, can be significantly influenced by ongoing environmental experience. Neurons can be programmed by postnatal socialization and learning experience.

Another early misconception has now been dispelled. What the infant becomes can no longer be looked upon merely as a result of toxic or deprivatory experiences with deviant parents. Mothers estranged from their infants were, in the past, erroneously considered to be rejecting their infants. We now know that the' estrangement which parents, in fact, feel toward their infant may be, to some extent, iatrogenically caused by, for example, hospital routines, illness in the infant, disappointment, inadequate social support, a stressful marriage, or maternal depression. The terms "rejecting mother," "toxic mother," or "depriving mother" no longer do justice to the data.

A third misconception, one that has a tendency to recur in waves with each new generation, is that infants have no psyche until they can speak; that is, that they are incapable of thought and incapable of developing subtle specific affective states. Piaget has become the most widely quoted of all infant development workers. His studies, including replication by others, have amply demonstrated how cognitive sequences develop in infancy during the sensorimotor period prior to the establishment of language. Infant mental testing has been shown to be useful during infancy itself. These tests have not

been successful in predicting later outcome except at the extremes. Boys are less predictable than girls in such testing. Because of these facts it is no longer appropriate to make even the diagnosis of mental subnormality based on infant tests during the first two years of life. Such a diagnosis must await further longitudinal study of a given infant considered suspect.

A fourth conception about infancy, now seriously undermined by newer findings, is the idea that all infants progress neatly through various stages of mental development and that a disruption of mental development at one period in life will have long-term consequences for future disruption. Studies of blind children, deaf children, and rubella infants have already been cited to cast serious doubt on this idea.

There is another important problem in the study of infant development. Infant development is highly vulnerable to such changes as rapid regressions and progressions. There is no straight-line progression in any function. For example, transformations of hand use from reflexive grasping to intentional manipulation are not always easily discerned, and yet the meaning of each achievement is monumentally different. The same is true in language development.

Newer findings in bioneurological research have shown that in the immature organism with organic brain insult, recovery can be expected if

nutritional needs are met and richness of sensorimotor patterning is maintained. Nutritional defects may be overcome by richness of sensory experience. The picture that seems to be emerging is that the brain itself is quite plastic and resilient. Peter Wolff has expressed this as follows:

> Contemporary attempts to predict normal and deviant developmental outcome from neural behavioral status at birth have been generally disappointing. Failure of prediction may be due in part to the inadequate selection of study samples, and the failure to standardize examination procedures in the irrelevance of outcome measures. However, uncontrolled genetic factors, the effect of unsuspected environmental influences and particularly the lack of knowledge concerning developmental transformations in the covert mechanisms that control manifest behavior, severely limit our ability to predict from neonatal behavior to psychological adaptation in the mature person, [p. 304]

Roger Walsh, summarizing experimental data on rats, has commented:

> It is clear that the brain must now be recognized as a plastic organ whose chemical and physiological systems change in an exquisitely sensitive and probably functionally adaptive manner to the environment. The large majority of parameters examined to date have been found responsive and in fact it may well be time for environmental complexity-deprivation studies in particular, and neuroscience in general, to undergo a shift in perspective.

Another area of major development has been our increasing knowledge of the specifics of object orientation, attachment, and anchorage as reflected in the infant-caretaker interaction. We now can understand a whole series of developmental sequences that are set in motion at the time of birth and that

show how the human infant becomes attached and anchored to its caretakers and vice versa. As studies indicate, these reciprocal relations between infant and caretaker are quite striking. Recently this author was able to demonstrate how early patterns of both physiological and behavioral reciprocity between mother and infant set in motion the communicative apparatus of the infant and mother, which in turn sets the stage for language development.

Proposed Classification of Maladaptation Syndromes in Infancy

Clinical diagnostic assessment is difficult if not impossible during infancy because (1) the rate of change for all mental functions is rapid; (2) change in a given individual does not take place in a regular line of progression but is characterized by periods of progression and regression; (3) periods of confusion occur during transition; (4) prediction of later outcome from earlier events is more hazardous, since the personality is, in general, more plastic and changeable, as well as more capable of adaptation to change; (5) the brain itself is essentially still fetal in character and does not consolidate its fully functional structure until around the age of five; and (6) assessment itself is complicated by the infant's helplessness and dependency; that is, assessment of the infant must always be qualified by the context in which the assessment is made.

One might consider diagnosing only those conditions in infancy that are

significant precursors of diagnostic entities identifiable in later childhood or adult life. However, this approach, which has characterized earlier attitudes toward infant problems, if carried too far, supports the conceptions of the infant as a very young child or embryonic adult. Such an attitude ignores infants as persons with their own strengths, weaknesses, and peculiarities. All of these considerations favor a multiaxial approach to diagnosis. The issues involved in developing a system of diagnostic classification in infancy are sufficiently unique to require a specialized approach that takes into account all of the factors previously mentioned. What follows is a general outline of a group of diagnostic categories that might prove useful.

1. Healthy responses, no maladaptive disturbance. Example: a temporary regression due to illness.

2. Developmental disturbances:

    a. Primary developmental deviation—developmental disturbance without demonstrable deficit in brain or bodily functions. Examples: slow motor and language development, autism, environmental retardation, language delay.

    b. Developmental disturbance associated with impairment of brain structure. Example: Down's syndrome.

    c. Developmental disturbance in association with deficiency of brain function, but without demonstrable structural change. Example: hypsarhythmia.

d. Developmental disturbance associated with bodily illness or physical handicap without deficit in structure or functioning of the central nervous system. Examples: developmental disturbance associated with blindness, deafness, arthrogryposis, congenital heart disease, or kidney disease.

3. Psychophysiologic disturbances. Examples: bronchial asthma, eczema, peptic ulcer, rumination.

4. Attachment disorders of infancy.

Primary attachment failure; that is, failure to thrive without organic cause.

b. Attachment disorder, anaclitic type; that is, anaclitic depression.

c. Attachment disorder, symbiotic type; that is, prolongation of symbiosis associated with recent divorce of parents.

5. Disturbed parent-child relationship. Examples: sadomasochistic relationship and dyadic dyssynchrony in infancy, communication impasse.

6. Behavioral disturbances of infancy. Examples: attention disorder of infancy, sleep problems, irritable infant syndrome, “colic.”

7. Disturbances of the environment (beyond the adaptive capacity of a healthy infant).

Disturbances of fetal environment. Examples: fetal alcohol

syndrome, RH or sensitization, rubella infant.

b. Disturbances of environment during the perinatal period. Examples: anesthesia effect, barbiturate poisoning, acute brain syndrome due to traumatic delivery.

c. Primary deficit in caretaking after birth. Example: institutionalized infant.

d. Iatrogenic disturbance.

1) Secondary to inappropriate medical care or advice.

2) Secondary to psychological care or advice.

3) Secondary to bad educational care or advice.

e. Acute distress syndrome of infancy associated with physical or psychic trauma. Examples: starvation, dog bite, traumatic separation, death of parent.

8. Genetic disturbance.

With phenotypic expression.

b. Without phenotypic expression.

c. In family after transmission to child.

9. Language disorder of infancy.

A multiaxial approach to diagnosis of infancy must be considered. Rutter and colleagues proposed five axes that they considered relevant for child psychiatric diagnosis.

Axis I: Clinical psychiatric syndrome.

Axis II: Developmental disorder.

Axis III: Intellectual level.

Axis IV: Associated biological factors.

Axis V: Associated psychosocial factors.

The new *Diagnostic and Statistical Manual of Mental Disorders*1 axes include:

Axis I: Clinical psychiatric syndrome(s) and other conditions.

Axis II: Personality disorders (adults) and specific developmental disorders (children and adolescents)

Axis III: Nonmental medical disorders.

Axis IV: Severity of psychosocial stressors.

Axis V: Highest level of adaptive functioning past year.

This classification of syndromes in infancy includes developmental consideration and biological factors. Intellectual level in infancy is included as one aspect of development in infancy. Psychosocial stressors are different in infancy and need to be specified. A global rating of severity of disturbance in infancy still needs to be worked out. It is clear from all of these considerations that a great deal of work needs to be done by people dealing with various aspects of infant study. It is especially clear that diagnostic systems worked out for older children and adults are not applicable to the period of infancy.

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