1972

Year Book OF PSYCHIATRY AND APPLIED MENTAL HEALTH

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THE YEAR BOOK *of* PSYCHIATRY AND APPLIED MENTAL HEALTH

1972

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Printed in U.S.A.

Library of Congress Catalog Card Number: 77-82868

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INTRODUCTION

One of the functions of this YEAR BOOK is to highlight the emerging trends and directions in the field of psychiatry and applied mental health. This year, one sees the pressures on mental health professionals to be more involved with social issues, to function as change agents and to coordinate more effectively mental health into the health maintenance programs in our communities. The elimination of the internship and the development of elective track systems in medical schools pose special problems to psychiatric educators. The fields of social work, psychology, education and nursing are undergoing similar re-evaluation and restructuring of their training approaches. There are also struggles to define better the role and responsibilities of the paraprofessionals in the mental health field.

Over and above all these problems is the question being asked of the field of mental health about the effects on man of the new technologies, and, in particular, his patterns of adaptation to change in the changing world that the new technology makes possible. When all the other questions are answered, this one can be expected to continue to preoccupy our professions. Therefore, it is felt to be timely to present some current thinking about where the process of adaptation begins, as well as where the distortions in personality development and adjustment begin, in the first 3 years of life. This is an important direction in which the field of mental health is predictably moving.

THE FIRST THREE YEARS OF LIFE: AN OVERVIEW OF A NEW FRONTIER OF PSYCHIATRY*

The new frontier of psychiatry—the first 3 years of life—has been summarized as the task of helping a small, helpless, mindless being to become "humanized"—to become a member of society and a person in his own right and to develop patterns of control over his impulses (Spitz, 1970). Recent studies by the Joint Commission on Mental Health of Children (1970) indicate the need for increasing involvement with these neglected years in order to understand, treat and prevent disordered behavior and to respond to problems of the community and nation, such as violence and crime, racism, nonlearners who become the unemployed and the personality characteristics of hopelessness, helplessness, passivity, dependency, apathy, alienation, suspiciousness and depression seen in the Inner Cities. That many of these problems originate in childhood is known but not how early. Recently, Headstart programs were found to be too late for many of the young.

If conception is the starting point for understanding normal and abnormal development, the age of a baby must be considered as 9 months (usually) at birth. A new type of behavioral embryology is evolving and must be included as a basic science of psychiatry. At present, only the earliest stages of the brain-body interactions are even suggested. Increasingly knowledge of the prenatal period is needed to help in understanding

*From Lourie, Reginald S.: Am. J. Psychiat. 127:1457-1463, May, 1971.

the psychosomatic problems of later life. Does an organ or organ system develop a pattern of reaction to stress when there is acute or chronic stress during its formation, e.g., when the oxygen supply is threatened? Will there be this kind of response when later stress is encountered? Thus far, an "umbilical stage," when the hematologic system learns a pattern of response to stress, and a "deglutitive stage," when the fetus first learns to swallow, have been postulated. Increasingly ingenious devices for direct intervention into the uterus will allow monitoring and eventually corrective approaches with the fetus. It is now hypothesized that the nutritional state of the mother at conception is the major single determinant of the kind of fetus being dealt with.

Pathologic conditions can best be corrected during the first 18 months of life, when the brain is most plastic and grows faster than at any other time and inputs begin to build on prenatal foundations. Most spasticities and skeletal deformities can be prevented if cerebral palsy is appropriately diagnosed and actively treated in the first 18 months (Bobath, 1967). Studies on animals and infants have indicated (Negera, 1969) that brain structure development is not reached at birth; for fullest unfolding of the genetic potential, maturation processes must continue after birth. Continuation depends not only on internal forces but on their interaction with different forms of external stimulation. Such stimuli, e.g., those in the mother-child relationship, seem absolutely necessary. They also seem to influence the internal maturation processes by favoring progressive complex arborization of dendrites during the first few months, by increasing vascularization of certain brain structures and by increasing and furthering myelinization. Embryologic studies show critical periods for development of specific organ functions. Evidence strongly suggests that the individual can never wholly recapture his original potential once the optimal period for development of a part or function has passed.

Not only the psychoanalytic formulation of oral, anal and start of phallic stages, but many stages of development occur in the first 3 years—at least one for every part of the body as it comes into voluntary control and for every function as it develops. Each new-found part is experimented with relative to its use in serving instincts, i.e., for survival, pleasure and aggressiveness. As perception and awareness develop, the baby moves from a relatively unrelated stage at birth to an image of himself as a wholly dependent part of another person by age 3-5 months. If this achievement is made difficult, distortions in his concept of dependency, closeness and trust can result. At one extreme is the child who says that making this step is too hard or uncomfortable and elects to remain unrelated, i.e., autistic.

Matching of constitutional vulnerabilities with assets will give a better picture of how a baby can be helped to achieve optimal development, starting with object relationships. For example, tactile hypersensitivity will interfere with being comfortable, with closeness and in seeing oneself as part of another. If the baby's need to be part of another is great enough, he will make the first step, but the result can include a long-lasting expectation that dependency involves pain. As dependency is part of most close relationships, masochism may start here. If this makeup distortion is rec-

ognized early and properly handled, it is usually compensated for and is no longer clinically evident before the end of the 1st year.

An inventory of constitutional factors made early in life can make possible methods to prevent a poor approach to problems of early personality development. Liabilities can include imbalances, deviant arousal patterns, low energy and "sending power," labilities, disturbances in integrative capacities, the threshold for stimuli, special sensitivities and structural difficulties. Assets are adequate sending power, curiosity and flexibility as measured by ability to provide substitutes, fend off pressures, turn away and alter the environment to organize, protect the self and get needed help or support. Lois Murphy's Vulnerability Check List (Chandler *et al.*, 1968) is most useful for assessment of these areas.

Often, the blind, the deaf and the cerebral palsied or otherwise brain-damaged child have multiple handicaps that may be overlooked because emphasis is on the major presenting problem. The athetosic cerebral palsied child, trying to control arm movement, can be frustrated by a tendency to perseveration. The hyperactive deaf child may not be able to sit still or to concentrate long enough to find other communication patterns. A passive child with perceptual hypersensitivity to light, sound, touch, temperature or pain cannot cope with stimuli other babies could avoid. The hyperactive baby's motor drives may be stronger than his coping devices or capacity for love to bind them; this can eventually lead to impulsiveness, destructiveness and aggressiveness. In early life, a tendency for thinking and coordination to become disordered under stress is evidenced as disorganized motor activity. If the stress situation is related to such vulnerabilities as a low threshold for displeasure, hostility or anxiety, the end result can be a feeling of helplessness—the worst possible feeling. In contrast is the baby who is better organized under stress. It is believed that this tendency is built into the organism at birth.

The child should be helped to develop an optimistic attitude and positive approach to problem solving. With components of the autonomous ego identified and cataloged, parents are helped to be aware, to recognize a problem and to assist in correcting an anxiety-producing situation. For the too compulsive infant who cannot shift away from a subject, someone to change the scene or mood helps him develop a wider range of affect—more capacity for fun, joy, interest in new experiences, play and ultimately creativity. For a passive, low-energy infant, outside help and stimulation are needed if he is to overcome his initially poor capacity to exert effort, to struggle against obstacles and to keep trying after failure. The hyperactive child who cannot stop himself and does not get needed help in putting the brakes on is especially subject to distortions in the concept of self and body image. To avoid the feeling of helplessness, he defends his poorly controlled actions. However, he still has a poor opinion of himself and has a good chance of being a depressed, self-defeating schoolage child and adolescent. That many infants solve the problems posed by potential handicaps during maturation and regulation is evident from the ones who seem to "grow out of it," i.e., overcome developmental delays.

Since the senses have no connection at the start of life, they must become coordinated and integrated to optimally negotiate development of

the ego functions, memory, reality testing and ability to think abstractly, to fantasy and to be curious. "Organizers" in the infant's experience begin integration of functions. Major organizers are vision and pain. However, inputs without affect result in learning that is impermanent unless repeatedly reinforced. At about 8 months, the baby can see himself as slightly independent when he can crawl away from his mother and identify strangers and strange places. This stage of separation anxiety thus becomes another personality organizer. Inappropriate solutions to this phase in development of independence have been implicated as precursors of later depressions (Bowlby, 1969) and of persisting fear of strangers and anxiety in the face of anything new or different.

In the 2d and 3d years, when character formation proceeds actively, the stage of negativism is an organizer of the will. Body-image development organizes self-respect. In the 3d year, the first and often most important answers to questions of race are established. Toilet training is an example of processes of learning body control that are organizers of the child's control system. This type of control is most actively developed in the 2d year and becomes integrated with the process of control over impulses. Inappropriate models for handling aggressive impulses, especially the overstimulating or distorted, can complicate this multidetermined process of "civilizing the drives." Violence as a way of life can start here. Another organizing force centers around exploring property rights. This becomes integrated with moral values and respect for rules. Here and in the control system is laid the groundwork for later delinquency.

These examples indicate how those concerned with problems of human behavior must be concerned with the first 3 years of life if roots of later pathologic behavior are to be identified for prevention and early modification. Psychiatry has neglected the time in the life cycle when a new frontier can be most profitably opened. Training programs have not been involved with problems solvable in the first years of life, nor has the necessary partnership been developed with those who have been concerned with this period. Both are gaps to be filled.

Conclusion

It is quite obvious that no one discipline alone can deal with the process of primary and secondary prevention in these early years. Up to now, pediatrics and child development have shared this responsibility but, on the whole, with notable exceptions, have neglected it. The workers in these fields should have the collaboration and participation of colleagues in all the branches of the mental health professions as well as in training paraprofessionals to carry early child development counseling roles. Although we still do not have all the information needed about this key time of life, what we do know, if we can apply it, can be helpful in the development of the healthiest foundations now possible. Pathology developed later in life is much easier to modify if the individual's personality "underpinnings" are sound. Possibly we need a new concept of a Department of Defense, with an Army of trained workers to protect against the development of mental handicaps that deplete our treasuries.

R.S.L.

NEUROPHYSIOLOGY

Brain Function in Problem Children and Controls: Psychometric, Neurologic and Electroencephalographic Comparisons. Abraham Wikler, Joan F. Dixon and Joseph B. Parker, Jr.[1] (Univ. of Kentucky) studied the psychometric, neurologic and EEG features of 25 children, aged 5-15 years, referred for scholastic and/or behavior problems, without evidence of organic neurologic disease, seizures or an IQ below 86. Matched control subjects were also examined. Psychometric tests included the Wechsler Intelligence Test, Bender Motor Gestalt Test, Graham-Kendall Memory for Designs Test, the Minnesota Percepto-Diagnostic Test, the Draw-a-Person Test and the Wide Range Achievement Test.

Study patients differed from control subjects by having lower scores on tests involving perceptual-motor tasks, more neurologic soft signs and more frequent diffuse, rhythmic slow EEG activity. There was also a greater incidence of abnormal transient discharges in the study patients, mainly during drowsiness or sleep. Comparison of 11 definitely hyperactive and 9 definitely nonhyperactive patients showed two distinct syndromes. One was characterized by hyperactivity, perceptual-motor deficits, excessive neurologic soft signs and, in the EEG, excessive nonage-dependent slow activity with abnormal transient discharges. The other was characterized by excessive neurologic soft signs and excessive, age-dependent slow EEG activity with abnormal transient discharges, without hyperactivity or perceptual-motor deficits.

It is concluded that, while in general, children with scholastic-behavioral problems show evidence of brain dysfunction, the presumptive underlying central nervous system abnormality in hyperactive children differs from that in nonhyperactive children either in kind or in severity. The problem will be resolved only by longitudinal studies on hyperactive children.

Vestibular and Nondominant Parietal Lobe Disorders: Two Aspects of Spatial Disorientation in Man. John S. Barlow[2] (Harvard Med. School) reports on two basic forms of spatial disorientation, considered in relation to the normal and possible abnormal function of man-made navigation systems.

Analogous with the flexible design of the Apollo navigation and guidance system in which there are several different sources of input information, if information from one sensory system is not available in patients, then the other sensory systems can compensate to a large extent. This is seen in the remarkable ability of the blind to find their way, which must be dependent to a large degree on a normally functioning vestibular system. But the vestibular system itself is not absolutely essential for route-finding in man, provided other sensory cues are available.

Analogous with malfunctions of the guidance and control system, which could arise from defects in the spacecraft computer or its associated memory, the disorder of spatial orientation is considered, as manifest in route-finding or the ability of finding one's way about that is associated with disease of the brain. Impaired route-finding associated with cerebral dis-

(1) Am. J. Psychiat. 127:634-645, November, 1970.
(2) Dis. Nerv. System 31:667-673, October, 1970.

ease is not dependent on the modality of sensory input (visual, vestibular, auditory, tactile, singly or in combination.)

In sharp contrast with the patient with vestibular loss, whose route-finding can be seriously impaired if visual cues are not available, patients with cerebral disease can have impairment of route-finding even when visual cues are available. For example, it is not infrequent that such patients are unable to find their way about even in familiar surroundings. The same can be true of patients at a chronic disease hospital or extended care facility; they may be unable to find their own room at the hospital. It is as though such a patient had lost the ability to keep in mind a frame of reference, a system of spatial coordinates, on which is built up the image of the external world as derived from the various sensory inputs. The difficulty is with the central integrative mechanisms or the computer and its memory.

Results of Stimulation and Destruction of the Posterior Hypothalamus in Man. To calm down or correct patients with abnormal behaviors, Keiji Sano, Yoshiaki Mayanagi, Hiroaki Sekino, Motohide Ogashiwa and Buichi Ishijima[3] (Univ. of Tokyo) have been performing a posteromedial hypothalamotomy by making stereotaxic lesions in the posteromedial part of the hypothalamus.

Points showing various effects of stimulation were mapped on frontal sections of the Schaltenbrand-Bailey atlas. The area where rise in blood pressure, tachycardia and maximal pupillary dilatation occurred was located in the posteromedial hypothalamus, more than 1 mm. and less than 5 mm. lateral from the lateral wall of the 3d ventricle. It was designated the ergotropic triangle because it was occupying the triangle formed by the midpoint of the intercommissural line, the rostal end of the aqueduct and the anterior border of the mammillary body, in the lateral view.

By electric stimulation of this ergotropic triangle, desynchronization of the EEG and electrocorticogram was caused in the neocortex and in the limbic structures except in the hippocampus where often rhythmic theta waves were elicited. The plasma level of nonesterified fatty acids (NEFA) in the fasting state was high in all 4 patients examined, being more than 1,000 μEq./L. (the normal upper limit is 600 μEq./L.). By electric stimulation (100 cps, 10-20 volts, 1 msec. for 5-10 seconds) of the posteromedial hypothalamus, it was rapidly elevated. The growth hormone level in the plasma, measured by means of immunoassay in 3 patients, increased during stimulation of the posteromedial hypothalamus, reaching a maximum value 5-15 minutes after the stimulation.

After hypothalamotomy the patient became markedly calm, passive and tractable, showing decreased spontaneity. Of the 51 patients, 42 were followed for 2-7 years. Excellent results were obtained in 12 and good results in 28 patients. Postoperatively there was a tendency to a decrease in sympathicotonia or an increase in parasympathicotonia. The plasma level of nonesterified fatty acids markedly decreased in about 10 days after the hypothalamotomy.

Most of the patients had epileptic seizures. After the hypothalamotomy,

(3) J. Neurosurg. 33:689-707, December, 1970.