DOCUMENT RESUME

ED 214 635 PS 012 718

AUTHOR Provence, Sally
TITLE Research on Infancy of Special Relevance for Mental Health. Matrix No. 11A.
INSTITUTION Administration for Children, Youth, and Families (DHHS), Washington, D.C.
PUB DATE Jan 82
NOTE 18p.; Paper presented at the Research Forum on Children and Youth (Washington, DC, May 18-19, 1981). For related documents, see ED 213 518-526, PS 012 713-715, PS 012 717 and PS 012 722-725.
AVAILABLE FROM Administration for Children, Youth, and Families, P.O. Box 1182, Washington, DC 20013 (no price quoted).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Biological Influences; *Child Caregivers; *Child Development; Competence; Disadvantaged Environment; *Emotional Development; Individual Characteristics; *Infants; Intervention; Language Acquisition; *Mental Health; Parent Child Relationship; Research Utilization

ABSTRACT

Research relevant to planning and practice in the area of infant mental health is discussed in this paper. First, three examples of research approaches that reflect current attitudes are given. The first example represents those studies in which there is an effort to closely coordinate physiological and behavioral studies. The second example represents studies focusing on the infant and the caretaking environment as a living, biological system. The third example represents interest in the systematic study of affect development, some of it with the goal of theory building. It is pointed out that these three large and overlapping areas of currently intense inquiry are applicable to clinical practice in the early years and each depends partly on the study of deviations in development and in the parent-child relationship. In subsequent material, several other categories of studies relevant for the field of infant mental health are cited in condensed form. These include studies of (1) congenital characteristics and individual tendencies, (2) vulnerability and resilience, (3) competence and effectance motivation, (4) separation-individuation, (5) deprivation, separation and loss, (6) parent-infant interaction, (7) speech development, (8) parent-child attachment behavior and disorders of attachment, and (9) early intervention. (Author/RH)

MATRIX NO. 11A

RESEARCH ON INFANCY OF SPECIAL RELEVANCE FOR MENTAL HEALTH

by

Sally Provence, M.D.
Professor of Pediatrics

Child Study Center
Yale University School of Medicine

PAPERS
PRESENTED AT
THE RESEARCH FORUM
ON
CHILDREN AND YOUTH

May 18-19, 1981

Convened in Washington, D.C.

Sponsored by

Federal Interagency Panel on Early Childhood Research and Development

Federal Interagency Panel for Research and Development on Adolescence

Publication Date: January 1982

Research, Demonstration and Evaluation Division
Administration for Children, Youth and Families
Office of Human Development Services
U.S. Department of Health and Human Services

Papers available from: ACYF
P.O. Box 1182
Washington, DC 20013

RESEARCH ON INFANCY OF SPECIAL RELEVANCE FOR MENTAL HEALTH

In this communication I can do little more than to cite some of the research that is of special relevance especially for planning and practice regarding mental health in the earliest years of life. One of the problems of such a communication is that it must be highly selective, and that being the case, is likely to reflect the preferences and perhaps biases of the author. (The NIMH Science Monograph 3, written by Dr. Mary Blehar, reviewed by a group of infancy experts and printed in 1980, covers many of the issues more comprehensively than I can do in this piece.) I have elected to cite mainly the studies I have found particularly useful as a practitioner and those that, while their clinical applicability may not be immediately apparent, are significant because they open new avenues of thought and inquiry.

I must begin, however, with a statement about a flagrant omission: I have not attempted to deal with even the most current research on the prenatal and circumnatal period, in spite of its major implications for mental health issues. Its importance is implied in the discussion of endowment, vulnerability and damage. The influence of the expectant mother's health; nutritional status; endocrine, hormonal and psychological changes; the events surrounding labor and delivery; the way in which both parents meet the adaptational crisis of new parenthood – all are important factors influencing the mental health of the infant. New methods of antenatal diagnosis and treatment, for example, give rise to new opportunities and new concerns for parents and ethical issues for practitioners, while providing more precise information. Neonatology is a burgeoning field, and there are many points at which the cooperation of health and mental health professionals is needed in order to provide high quality services. But, as I said, I can only recognize this in passing and trust that it will be discussed elsewhere in this volume.

One can begin, I believe, with the widely accepted proposition that the development of the child is a complex, dynamic, interactional process in which inborn characteristics and the many experiences that comprise the child's environment continuously influence one another. Recent emphasis in many developmental studies, as well as in developmental theory, has been on the interactional and transactional nature of the contact between the infant and his caregivers and the older, simpler dichotomy of nature vs. nurture fortunately has been largely abandoned. That such research is difficult, and that there are many obstacles to its successful pursuit, is a cause for tears but not discouragement! A real acceptance of the complexity of human development, and therefore, a backing away from our earlier tendency to assume we had answers for all is a healthy state. Moreover, that we can be both more respectful of the multiple factors that influence mental health and development and at the same time feel more confident about the soundness of our therapeutic work with infants and parents, reflects, I believe, continued progress.

Three examples of research approaches that reflect current attitudes will be given prior to noting some of the other research studies that, in my view, have particular applicability to clinical work. The first example represents those studies in which there is an effort to coordinate closely physiological and behavioral studies.

Cohen (1974) has summarized the importance of conceptualizing the organization of behavior as an interaction of biological and psychosocial forces and has illustrated the use of a multivariate, interactional model as a way of approaching the complex

factors in development and the ways in which physiology and experience interact. He proposed a model for investigators concerned with the interaction of mind and body that recognizes and examines issues regarding biological endowment in interaction with psychosocial forces. As an illustration of the conceptual approach I quote:

> As a result of the genome and prenatal and neonatal experiences, children are born with differing congenital endowments – the constellation of processes underlying equanimity, attention, vigor, physical health and neurological functioning. . . . In basic and still unclear ways, congenital endowment and the congenital organization of behavior are patterned by complex biochemical interactions involving biogenic amines, hormones, and enzymes. In turn, the *early experiences* of a child – including nutrition, infection, drugs and trauma of delivery – lead to enduring patterns of behavior encoded in central nervous system metabolism. For example, appropriate stimulation and optimal stress – may condition the nervous system in such a way that later novel situations are neither too overwhelming nor totally blocked from attention. . . . What for one child may be optimal stimulation may, for another child even with the identical genome, be a stress leading to disorganization of behavior and inhibition of intentional activity (Pp. 387-388).

Cohen's proposed model is still in its own infancy. To pursue it requires very close correlation of biochemical and behavioral studies and developmental assessments, in order to approach some of the basic questions about personality development and vulnerability, about how physiology and experience interact and influence each other. In terms of explanatory data, we have to look to the future in this important area, but such studies offer the hope that at least some of the vulnerabilities and overt disorders will be better understood.

A second relatively new and promising approach is the one represented by a series of studies by Sander and his colleagues* focussing on the infant and the caretaking environment as a living, biological system. Sander (1980) cited three reasons for the design of his studies: (1) that psychoanalysts have renewed their interest in both biology and early development to shed light on the ontogeny of behavioral and psychological organization; (2) research in early development is experiencing a transition in emphasis from the classical experimental approach (isolating variables, reducing sources of variability, pursuing a linear concept of causality) toward the study of concurrent and interactive effects of multiple variables, mechanisms of integration and the formulation of nonlinear concepts of causality. That is, developmental research in Sander's view, is looking toward biological models and methods of investigating living processes from the holistic, evolutionary and systems perspectives of biology; (3) intense pressure is being exerted on clinical facilities to intervene actively at early pre- and postnatal levels in order to accomplish the aim of *primary prevention* of developmental deviations. Sander said, correctly I believe:

> We have but a meager empirical base of *prospective* data from which conceptualization of process can be constructed, or the lawfulness of change, plas-

*(Please see Sander's 1980 paper for references.)

ticity, or the integration of complex determinants in producing a predictable outcome can be well enough understood to guide prevention (P. 178).

Sander's papers are not easy for the average mental health professional to comprehend because they employ, in great part, the language and perspectives of the biologist. Yet, it behooves us to study them because of the strong probability that such an approach will help us to understand more about the preverbal years and basic biosocial (somato-psychic?) processes. I hope that the selection to follow will pique the interest and curiosity of mental health clinicians.

As an example, Sander cited the temporal organization of the infant's various functions within its environment of life support as one perspective drawn from biology. He said,

> ... it is conceivable now to regard the new baby as a composite of semi-independent physiological subsystems, each with its own rhythm, such as those controlling heart rate, respiration, brain waves, body movement. Infants arrive with varying degrees of coherence or phase-synchrony between these component subsystems, [which] must become harmonized and coordinated *within* the baby, and in turn, tuned-up with the regular periodicities of the world and of the people who make up the baby's world.

Sander described a strategy of investigation as one in which the unit of observation was child and caregiver in concurrent action together around-the-clock. I refer you to Sander's paper for a description of the method. Significant findings from the research were differences over the first 10 days of life — sleep-wake cycles, synchrony, crying and motility in infants in two different caretaking environments. Confirmed later on larger samples, predictable organization of the 24-hour day (circadian rhythmicity) begins in the first 10 days of life in infants with a single caretaker giving a demand-feeding regimen; whereas, in infants cared for by several well-qualified caretakers during the same period, it does not. Sander summarized (and I paraphrase):

(1) Birth is a point of profound rupture in mechanisms of temporal organization in the fetal-maternal system.
(2) The caregiving environment must provide for a reestablishment of this temporal organization in terms of new exchanges that constitute the initial processes of regulation and adaptation.
(3) The first 3 days may be a crucial span of time in which the interaction of events responsible for *optimal* 24-hour temporal organization is established.
(4) Individual infant differences in periodicities and rates of change, interacting with individual differences in caretaking configurations, result in specific patterns of 24-hour exchange between the two.
(5) This regulatory *fittedness* of the two can reach an appreciable degree by the 10th day of life.
(6) The later adaptive employment of sensorimotor functions (vision, which has played a part in the initial regulation of the feeding situation, for example) is influenced by the earlier role they have played in the establishment of regulatory coordination.

This by no means does justice to Sander's approach, but perhaps it is sufficient to provide an introduction to an exciting new orientation to the study of basic mechanisms. Its applications go beyond the newborn period. Sander suggested that one can describe the changing organization of events and interactions over the first 3 years of life in the infant-caretaker system as a sequence of levels of fitting together between infant and caregiver. They extend from the biological issues to levels of adaptation concerned with feelings, words, expressions, ideas, intentions, etc. Sander provided an example of the synthesis of these perspectives on adaptation and fitting together with well accepted developmental data. He made a convincing plea for further exploration of infant and environment together as a biological system.

In a similar vein regarding mutual adaptation, recent research by Greenspan and his colleagues (Greenspan & Lieberman, 1980) demonstrated how earlier ideas about the innate organizational capacity of the infant, the mother's accommodations and their influence on each other can be studied clinically. They have developed measures of maternal and infant behavior applied to an observational setting from which they derive judgments about mother-infant pairs and the adequacy of their synchrony with each other. Combining clinical understanding of behavior with quantitative data analysis, they presented what they described as a "systematization of clinical impressions through a quantitative approach." They also stressed that the instrument is in a process of refinement and revision, but, appropriately, recommended it as one approach to "systematizing our understanding of the structural and thematic features of personality development" (P. 310).

A third area in which there is heightened current interest is in the systematic study of affect development, some of it with the goal of theory building. This appears to be a natural extension or perhaps renewal of interest of earlier studies such as those of Spitz (1950) and Benjamin (1963) on anxiety. One interesting collection of papers in M. Lewis & L. Rosenblum (1978) deals with various aspects of emotion in infancy ranging from its development to forms of expression to findings in clinical disorders.

Emde (1980) traced the role of affect in psychoanalysis, summarizing its propositions and cited the contributions from experimental psychology, especially the work of Izard (1971, 1972). He proposed a model of infant emotions in a biobehavioral context, illustrating major shifts in organization of emotions which, he suggested, are regular occurrences in development. The rootedness of the emotions in biology, their adaptive function and their dependence on the social environment are emphasized. The studies of Stern (1974, 1976), published and in progress, deal especially with affective communications between mother and infant and methods of observation (see also Shapiro & Stern, 1980).

These more recent investigators of affect development acknowledge the work of earlier studies of infancy, for example, Bridges (1933), Spitz & Wolf (1946), Stechler & Carpenter (1967).

The foregoing three large and overlapping areas of currently intense inquiry have in common that the issues posed do not invite closure; rather they are expansive and, at times, mind boggling. Yet, each avenue has its applicability and translation, at least in part, into clinical practice in the early years, and each depends partly on the study of deviations in development and in the parent-child relationship.

In the rest of this paper I will cite, in condensed form and with apologies for the lack of completeness, several other categories of studies that are especially relevant for the field of infant mental health.

Studies of Congenital Characteristics and Individual Tendencies

There are many studies of characteristics of healthy neonates. While the significance of these differences is only partially understood, there is evidence that they are factors influencing the variations and characteristics we refer to as "individuality" and "the course of personality development." Many writers, among them Anders (1978), Brazelton (1973), Escalona (1965, 1968), Fantz (1966), Fries & Woolf (1953), Kagan & Lewis (1965), Korner (1974), Lustman (1956), Sander (1980), Thomas, Chess, & Birch (1968), Wolff (1966) have studied differences in newborns and have speculated about their significance for psychological development. These studies include observations on sensory reactivity, temperamental differences, motility, state and state regulation, autonomic reactivity, biological rhythms. Some of the studies focus on how congenital characteristics of the infant influence the way he will experience the world into which he is born; others take into account the influence on his caregivers of the infant with a particular set of characteristics. Among the things these studies permit one to examine are issues regarding the interaction between the infant and his caregivers, which of his characteristics might be heightened or toned down by parental behavior, etc., etc.

One of the clearest statements of the possible implications of variations in the inborn tendencies of infants and the influence of experience on development has come from the studies of Escalona articulated in her 1968 book *The Roots of Individuality*. The influence of the child's congenital characteristics on parental reactions, some of the ways in which mother and infant shape each other's behavior, the dynamic nature of the interactional process and its multiple determinants are examined carefully in Escalona's studies.

Vulnerability and Resilience

Issues of vulnerability are of great current interest. Some infants come into the world equipped in such a way that they are more vulnerable than others to adversity and often have special needs. When the biological equipment is impaired for any reason, future development may be jeopardized not only by the somatic impairment but because biologically immature or impaired children are more vulnerable than entirely healthy ones to adverse psychosocial factors. Parmelee's (1981) longitudinal studies of premature infants, Fraiberg's (1977) studies of the blind, and Zigler's (1963) studies of retarded children in institutions are examples of this important issue. Lois Murphy's (1974) seminal writings on vulnerability, coping and resilience have stimulated efforts to assess and define these attributes as well as to look at their role in developmental outcome.

Studies of Competence and Effectance Motivation

There is a relatively recent intensification of interest in the development of competence and mastery in infancy. Robert White's (1959) essay is generally cited as the

stimulus for many of the current studies. These studies, among them Harter (1978), Harter & Zigler (1974), White (1975), Yarrow *et al.* (1975, 1976) have implications for mental health issues in infancy, since they deal with the infant's activity as an influence on the environment in which he lives. They are in the spirit of the importance of transactional and interactional factors in the infant's development and adaptation. As described by Yarrow (1981) they bring together constructs from ego psychology especially in respect to adaptive ego processes and Piaget's theory of the importance of action on cognitive development. These constructs find a place in therapeutic work with infants. For examples see Ferholt & Provence (1976), Fraiberg *et al.* (1969), Greenspan (1980), Provence (1972, 1974).

Separation-Individuation

Another influential group of studies are those of Mahler and those inspired by her studies and theoretical position on the separation-individuation process or – in a broader characterization – "The psychological birth of the human infant." I will cite here only Mahler, Pine & Bergmann (1975), though others increasingly are examining various aspects of this developmental construct and its clinical applications. In addition to the constructive exploration of Mahler's ideas, there is, it seems to me, a regrettable tendency to use the terms "separation" and "individuation" as catch words without proper attention to Mahler's intent, I believe, that they be understood as metaphors most useful for characterizing probable events in one aspect of development of the infant's and toddler's mental life.

Deprivation, Separation and Loss

There have been a great many studies of experiential deprivation, of separation and of loss and their impact on infant development. They have in general been quite influential in determining the organization and implementation of therapeutic efforts with infants and young children. (Benjamin, 1963; Bowlby, 1951, 1973; Freud & Burlingham, 1944; Mahler, 1966; Provence & Lipton, 1962; Spitz, 1946, 1950; Spitz & Wolf, 1946; Wallerstein & Kelly, 1975; Yarrow, 1964). Studies of infants without families, loss of one parent through death or divorce, studies of children in multiple placements are examples. There is little argument about whether such separation or loss has an impact on the infant's psychological development. The questions and disagreements concern the extent of the influence of these events, the specific aspects of the child's mental and emotional life that are affected, and the effect of such experiences on subsequent development.

Parent-Infant Interaction

Relatively recent studies of newborn infants or newborns and their parents that have focussed particularly on interactional issues also have gained the attention of clinicians. For example, Sander's (1962, 1970) studies of newborns and their mothers demonstrated the influence of the members of the dyad on one another's behavior. Similarly some of the work of Brazelton (1974) and his colleagues having to do with mother-infant and father-infant interaction in the early days of life demonstrated the complexity of that interaction even then. Stern (1971) has documented some of

the subtleties of how mother and infant make and avoid eye contact and influence each other with exchanges of such brief duration that they pass unnoticed on ordinary observation. Liederman & Seashore (1975), studying healthy premature babies and their mothers, have found differences in the mother-infant relationship in those separated early compared with those in which mothers had early contact as caregivers. The work of Klaus & Kennell (1976) in the hospital setting emphasized the importance to the mother-child relationship of the active support of physicians, nurses, and other hospital personnel in facilitating the attachment, and these authors make a strong plea for more support for mothers in the early days of the infants' lives. The emphasis on the crucial nature of contact in the early hours of the child's life has been oversold and subject to misuse, to the regret of Drs. Klaus and Kennell, and there is a need for the communication of a more balanced view of the advantages of early contact during a sensitive period, without the suggestion that the mother- (or father-) child relationship is doomed unless that occurs.

Studies of Speech Development

Many studies by clinicians, developmental psychologists and other early childhood specialists examine various aspects of language development, and one finds persuasive data both for the importance of intrinsic equipmental and maturational factors and for the child's experience, particularly with other persons (see, for example, Brodbeck & Irwin, 1946; Brown, 1973; Lenneberg, 1967; Lewis, 1959; Nelson, 1973; Piaget, 1952; Provence & Lipton, 1962). I will make no effort to go beyond stating that studies of speech development and the beginnings of verbal communication will continue to be centrally important for many reasons: what they contribute to further understanding of the semiotic function and other aspects of thinking, the infant's progress regarding the distinction of the self from the other, the role of speech in clarification and expression of ideas and emotions, etc., etc.

It is well established that the infant benefits from and probably requires a speaking social partner of some perceptiveness and consistency in order to optimize speech development. Here, as in other areas, the mother's accommodation to and identification with the infant extends the dialogue from nonverbal to verbal communication.

Studies of speech development in normal and deviant children, as in other areas, enrich one another and provide useful guidelines for remediation of delayed or deviant speech development.

Parent-Child Attachment Behavior and Disorders of Attachment

Based primarily on the well-known work of Ainsworth and Bell, studies of attachment and attachment behavior of infants continue to thrive. Perhaps it is important to repeat what Ainsworth & Bell (1970) emphasized more than 10 years ago: that attachment is not coincident with attachment behavior and, conversely, that a diminution or disappearance of attachment behavior, which can be systematically studied, is not necessarily a sign of diminished attachment. The attachment, they noted -- is the inner structurally-based predisposition to seek proximity to the object of attachment.

A point I wish to make in this context is the too-ready tendency of some in the infancy field to equate the terms "attachment" and "object relations" and to readily transpose the data of attachment behavior into statements about object relationships in psychoanalytic terms. While the constructs partake of one another, they are not, of course, synonymous. Perhaps this issue has become more complex recently because of the recent utilization of the term "attachment disorders" to include conditions formerly called "anaclitic depression," "symbiotic psychosis," "autism," and, to refer to those problems in which severe developmental disabilities of other kinds are accompanied by a failure of normal mother-infant interaction. While one respects the wish to improve the classification of infantile disorders by utilizing more descriptive terms, it appears that the multiple uses of the term "attachment" currently do cause some confusion and that clarification is needed.

Studies of Early Intervention

The literature on early intervention comes, in general, from two sources: reports of individual cases of infants whose development or behavior is disturbed in some way and reports of projects developed for groups of developmentally disabled, disturbed, disadvantaged and other vulnerable infants.

Early intervention efforts for individual infants and parents are not new, but there is renewed interest in the work as a more clearly defined speciality area (Call, 1976; Greenspan, 1980; Lourie, 1980; Rexford *et al.*, 1976). Dr. Lourie's paper described the formation, in 1976, of The National Center for Clinical Infant Programs, which developed out of the belief of a group of mental health clinicians and researchers that the time was ripe for concentrated efforts to develop effective methods of primary prevention of psychopathology in the earliest years of life. Among the clinical papers reporting treatment of individual infants and parents are those of Alpert, 1967; Brazelton *et al.*, 1971; Ferholt & Provence, 1976; Fraiberg, 1952, 1971, 1980; Furman, 1957; Provence, 1972, 1978. Those cited include a range of disorders and/or treatment methods.

One need of the field is for the collection and dissemination of more detailed care reports on diagnosis and treatment of mental health problems in infancy. The more abbreviated reports that have for years been included in various journals are a beginning. See, for example, Rexford *et al.* (1976). There are many others – too numerous to mention. A recent example of more detailed description is that of Fraiberg (1980) which includes both an overview of a specific approach and treatment methods and eight case reports. As to the relationship between clinical cases and research, we are at the stage in this field, I believe, where each case should be considered a research project, and the careful documentation of findings, of treatment, of change or the lack of change and in what specific dimensions, and the relationships between theory and practice are of great importance in our ability to understand and to alleviate problems and risk situations.

What characterizes the work with the very young and their parents is the diversity of the sign and symptom picture in the child (psychophysiologic symptoms of many kinds; developmental retardation or deviations in one, or usually, several areas; problems of behavioral organization; disorders of arousal and attention; body manifestations of stress; affective disturbances; etc., etc.). There now appears to be no

doubt that the closeness and relative lack of differentiation of psychic and somatic systems in infancy usually result in interference with multiple functions and systems in pathogenic situations. The relevance of this fact for clinical practice is that the approach to diagnosis and treatment must be multidisciplinary, that the special expertise of the mental health professional will be needed both in contributing to the diagnosis and participating in treatment. At the same time, pediatricians, nurses, educators, speech and developmental therapists and others (including parents and substitute parents) may have major responsibility for carrying out the therapeutic plan. One of the unsolved problems is how to make mental health professionals an integral part of the primary care system, since especially in the earliest years, it provides by far the best opportunities for early recognition of problems and early treatment.

Another source of data on intervention are the programs developed for socio-economically disadvantaged populations many of which were organized in the 1960s. For preschool children, earlier reports suggested that long-term effects were disappointing. But a closer look at some of the longitudinal programs (Consortium for Longitudinal Studies, 1978; Schweinhart & Weikart, 1980) reveals lasting beneficial results in some spheres of functioning. Bronfenbrenner (1974) and Gray & Wandersman (1980) reported greater effectiveness of both day care and home based programs in which services to parents are included. In particular, services contributing to change in the parent's view of self and life situation are important, and without them, gains made by the children soon erode. This view, not surprising to mental health professionals, was confirmed in two follow-up studies of participants in an early intervention program with disadvantaged, inner city families at the Yale Child Study Center. [Rescorla, Provence & Naylor (in press) and Trickett, Apfel, Rosenblum & Zigler (in press).]

Programs for infants and parents that provide a spectrum of services and are geared to specific needs and desires of clients seem no longer to require defending, as far as their demonstrated benefits for the participants are concerned. That such services should be of good quality, that they be addressed to parents as well as children, and that a working alliance with parents is necessary for greatest effectiveness seems established. For the very young, it must be emphasized that health services must be included or at least very closely integrated with educational, social and developmental guidance services.

Finally, I subscribe to Sibylle Escalona's (1974) view that from research and practice we have reason to be cautious about translating developmental theory into policies and broad scale programs, though, in selected areas, we have made progress. We are on the most solid knowledge base when dealing with the individual child and his family. Escalona pointed out that, from case studies and systematic clinical research, *retroactive* study

> . . . has shown beyond a doubt that particular life stresses, deprivations, frustrations and traumata during preschool years are significantly related to later psychiatric illness or deviant, impaired development. . . [Similarly] *retrospectively*, the association between biological risk factors and many environmentally determined social and psychological risk factors has been demonstrated.

Escalona noted, however, *prospective* studies – the effort to predict on the basis of identified risk factors a greater frequency of developmental deviations and psychopathology – have not fared as well. The same traumatic events that produce maladaptation and illness in those who become patients also are found among large numbers of normal individuals. Recognition of this fact has led to heightened interest in issues of vulnerability and resilience, of coping, adaptation and mastery. There is much to be learned. Though there is uncertainty about prediction of developmental outcome, there is more general agreement about the advantages of early identification of deviations in development and intervention according to the nature of the problem. This is based on the assumption that facilitating the infant's developmental progress and adaptation at any one period is likely to prepare him for the next phase. Conversely, failure to alleviate significant disturbances in functioning may make him more vulnerable to the stresses ahead as well as neglecting what could be done to improve his current functioning.

Bibliography

Ainsworth, M.S., & Bell, S.M. Attachment, exploration and separation: Illustrated by the behavior of one-year olds in a strange situation. *Child Development,* March 1970, 41(1), 49-67.

Alpert, A. Prenursery project: Indications and counterindications for therapeutic intervention in the prenursery via the mother. *Psychoanalytic Study of the Child,* 1967, 22, 139-155. (New York, NY: International Universities Press.)

Anders, T.F. State and rhythmic process, *Journal of the American Academy of Child Psychiatry,* 1978, 17, 401-420.

Benjamin, J.B. Further comments on some developmental aspects of anxiety. In H. Gaskill (Ed.), *Counterpoint.* New York, NY: International Universities Press, 1963.

Blehar, M. *Development of mental health in infancy.* NIMH Science Monograph 3. Washington, DC: U.S. Government Printing Office, 1980. DHHS Publication No. (ADM) 80-962.

Bowlby, J. *Maternal care and mental health.* New York, NY: Columbia University Press, 1951.

Bowlby, J. *Attachment and loss (Vol. II): Separation, anxiety and anger.* New York, NY: Basic Books, 1973.

Brazelton, T.B. *Neonatal behavioral assessment scale.* London and Philadelphia, PA: Spastics International Medical Publishers, 1973.

Brazelton, T.B. Does the neonate shape his environment? In D. Bergsma (Ed.), *The infant at risk.* New York and London: Intercontinental Medical Book Corp., 1974. Pp. 131-140.

Brazelton, T.B., Young, G.G., & Bullowa, M. Inception and resolution of early pathology. *Journal of the American Academy of Child Psychiatry,* 1971, 10, 124-136.

Bridges, K.M.B. Emotional development in early infancy. *Child Development,* 1933, 3, 324-341.

Brodbeck, A.J., & Irwin, O.C. The speech behavior of infants without families. *Child Development,* 1946, 17, 145-156.

Bronfenbrenner, U. *Is early intervention effective?* Washington, DC: U.S. Department of Health, Education and Welfare, 1974. DHEW Publication No. (OHD) 74-25.

Brown, R. *A first language: The early stages.* Cambridge, MA: Harvard University Press, 1973.

Call, J. Infant observation and longitudinal study: Implications for mental health and primary prevention of mental disorders in high-risk situations. In E. Rexford *et al.* (Eds.), *Infant psychiatry: A new synthesis.* New Haven, CT: Yale University Press, 1976.

Cohen, D.J. Competence and biology: Methodology in studies of infants, twins, psychosomatic disease and psychosis. In E.J. Anthony & C. Koupernik (Eds.), *The child and his family: Children at psychiatric risk* (Vol. 3). New York, NY: John Wiley & Sons, 1974.

Consortium for Longitudinal Studies. *Lasting effects after preschool.* Final report of HEW Grant 90C-1311. Denver, CO: Education Commission of the States, 1978.

Emde, R.N. Toward a psychoanalytic theory of affect. I. The organizational model and its propositions. II. Emerging models of emotional development in infancy. In S.I. Greenspan & G.H. Pollock (Eds.), *The course of life (Vol. I): Infancy and early childhood.* Washington, DC: U.S. Government Printing Office, 1980. DHHS Publication No. (ADM) 80-786. Pp. 85-112.

Escalona, S.K. Some determinants of individual differences in early ego development. *Transactions of the New York Academy of Sciences, Series II,* 1965, 27(7), 802-816.

Escalona, S.K. *The roots of individuality.* Chicago, IL: Aldine Publishing Company, 1968.

Escalona, S.K. Intervention programs for children at psychiatric risk: The contribution of child psychology and developmental theory. In E.J. Anthony & C. Koupernik (Eds.), *The child and his family: Children at psychiatric risk.* New York, NY: John Wiley & Sons, 1974.

Fantz, R.L. Pattern discrimination and selective attention as determinants of perceptual development from birth. In A.H. Kidd & J.L. Rivoire (Eds.), *Perceptual development in children.* New York, NY: International Universities Press, 1966.

Ferholt, J.F., & Provence, S. Diagnosis and treatment of an infant with psychophysiological vomiting. *Psychoanalytic Study of the Child,* 1976, 31, 439-459.

Fraiberg, S. A critical neurosis in a two-and-a-half-year-old girl. *Psychoanalytic Study of the Child,* 1952, 7, 173-215.

Fraiberg, S. Intervention in infancy: A program for blind infants. *Journal of the Academy of Child Psychiatry,* 1971, 10, 381-405.

Fraiberg, S. *Insights from the blind: Comparative studies of blind and sighted infants.* New York, NY: Basic Books, 1977.

Fraiberg, S. (Ed.). *Clinical studies on infant mental health.* New York, NY: Basic Books, 1980.

Fraiberg, S., Smith, M., & Adelson, E. An educational program for blind infants. *Journal of Special Education,* 1969, 3(2), 121-139.

Freud, A., & Burlingham, D. *Infants without families: The case for and against residential nurseries.* New York, NY: International Universities Press, 1944.

Fries, M.W., & Woolf, P.J. Some hypotheses on the role of the congenital activity type in personality development. *Psychoanalytic Study of the Child,* New York, NY: International Universities Press, 1953.

Furman, E. Treatment of under fives by way of their parents. *Psychoanalytic Study of the Child,* 1957, 12, 250-262. (New York, NY: International Universities Press)

Gray, S., & Wandersman, L. The methodology of home-based intervention studies: Problems and promising strategies. *Child Development,* 1980, 51(4).

Greenspan, S.I. Clinical developmental approaches to infants and their families: Theoretical perspectives and a research agenda. In S. Provence (Ed.), Zero to three. *Bulletin of the National Center for Clinical Infant Programs,* September 1980, 1(1).

Greenspan, S.I., & Lieberman, A. Infants, mothers, and their interaction: A quantitative clinical approach to developmental assessment. In S.I. Greenspan & G.H. Pollock (Eds.), *The course of life (Vol. I): Infancy and early childhood.* Washington, DC: U.S. Government Printing Office, 1980. Pp. 271-312. DHHS Publication No. (ADM) 80-786.

Harter, S. Effectance motivation reconsidered: Toward a developmental model. *Human Development,* 1978, 21, 34-64.

Harter, S., & Zigler, E. The assessment of affectance motivation in normal and retarded children. *Developmental Psychology,* 1974, 10, 169-180.

Izard, C. *The face of emotion.* New York, NY: Meredith Press, 1971.

Izard, C. *Patterns of emotions. A new analysis of anxiety and depression.* New York, NY: Academic Press, 1972. Pp. 1-301.

Kagan, J., & Lewis, M. Studies of attention in the human infant. *Merrill-Palmer Quarterly,* 1965, 11(2).

Klaus, M.H., & Kennell, J.H. (Eds.). *Maternal infant bonding.* St. Louis, MO: C.V. Mosby Company, 1976.

Korner, A.F. Individual differences at birth: Implications for child care practices. In D. Bergsma (Ed.), *The infant at risk.* New York, NY and London: Intercontinental Medical Book Company, 1974. Pp. 51-62.

Lenneberg, E.H. *Biological foundations of language.* New York, NY: John Wiley and Sons, 1967.

Lewis, M.M. *How children learn to speak.* New York, NY: Basic Books, 1959.

Lewis, M.M., & Rosenblum, L.A. *The development of affect.* New York, NY: Plenum Press, 1978.

Liederman, E.H., & Seashore, M.J. Mother-infant neonatal separation: Some delayed consequences. In, *Ciba Foundation Symposium 33, Parent-infant interaction.* Amsterdam: ASP, 1975. Pp. 213-239.

Lourie, R.S. The National Center: Primary prevention in the earliest years. In S. Provence (Ed.), Zero to three. *Bulletin of the National Center for Clinical Infant Programs,* September 1980, 1(1).

Lustman, S. Rudiments of the ego. *Psychoanalytic Study of the Child,* 1956, 11, 89-98.

Mahler, M. Notes on the development of basic moods: The depressive affect. In R.M. Loewenstein, L.M. Newman, M. Schur, & A.J. Solnit (Eds.), *Psychoanalysis: A general psychology.* New York, NY: International Universities Press, 1966. Pp. 152-168.

Mahler, M., Pine, F., & Bergmann, A. *The psychological birth of the human infant.* New York, NY: Basic Books, 1975.

Murphy, L.B. Coping, vulnerability and resilience in childhood. In G.B. Coehlo, D.A. Hamburg, & J.E. Adams (Eds.), *Coping and adaptation.* New York, NY: Basic Books, 1974.

Nelson, K. *Structure and strategy in learning to talk.* Monograph No. 149. Chicago, IL: University of Chicago Press, 1973.

Parmelee, A.H., Jr. Social influences on infants at medical risk for behavioral difficulties. In J. Call & E. Galenson (Eds.), *Proceedings of the First World Congress on Infant Psychiatry.* New York, NY: Basic Books, in press.

Piaget, J. *The language and thought of the child.* London: Routledge and Kegan Paul, 1952.

Provence, S. Psychoanalysis and the treatment of psychological disorders of infancy. In B.B. Wolman (Ed.), *Handbook of child psychoanalysis.* New York, NY: Van Nostrand Reinhold Co., 1972.

Provence, S. Some relationships between activity and vulnerability in the early years. In E.J. Anthony & C. Koupernik (Eds.), *The child and his family (Vol. 3): Children at psychiatric risk.* New York, NY: John Wiley and Sons, 1974. Pp. 157-166.

Provence, S. Some clinical applications of research on parent-child relationships. In M. McMillan & S. Henao (Eds.), *Child psychiatry: Treatment and research.* New York, NY: Brunner/Mazel, 1977.

Provence, S. Application of psychoanalytic principles to treatment and prevention in infancy. In J. Glenn (Ed.), *Child analysis: Technique, theory applications.* New York, NY: Jason Aronson, Inc., 1978. Pp. 581-596.

Provence, S., & Lipton, R. *Infants in institutions.* New York, NY: International Universities Press, 1962.

Provence, S., Naylor, A., & Patterson, J. *The challenge of daycare.* New Haven, CT: Yale University Press, 1977.

Rescorla, L., Provence, S., & Naylor, A. The Yale child welfare research program: Description and results. In E. Zigler & E. Gordon (Eds.), *Day care: Scientific and social policy issues.* Boston, MA: Auburn House Publishing Co., in press.

Rexford, E., Sander, L., & Shapiro, T. (Eds.). *Infant psychiatry.* New Haven, CT and London: Yale University Press, 1976.

Sander, L.W. Issues in early mother-child interaction. *Journal of the American Academy of Child Psychiatry,* 1962, 1, 141-166.

Sander, L.W. Regulation and organization in the early infant caretaker system. In R.J. Robinson (Ed.), *Brain and early behavior.* New York, NY and London: Academic Press, 1969.

Sander, L.W. Early mother-infant interaction and 24 hour patterns of activity and sleep. *Journal of the American Academy of Child Psychiatry,* 1970, 9, 103-123.

Sander, L.W. Investigation of the infant and its caregiving environment as a biological system. In S.I. Greenspan & G.H. Pollock (Eds.), *The course of life (Vol. 1): Infancy and early childhood.* Washington, DC: U.S. Government Printing Office, 1980. Pp. 177-201. DHHS Publication No. (ADM) 80-786.

Schweinhart, L., & Weikart, D. *Young children grow up: The effects of the Perry Preschool Program on youths through age 15.* Monographs of The High/Scope Educational Research Foundation, No. 7. Ipsilanti, MI: The High/Scope Press, 1980.

Shapiro, T., & Stern, D. Psychoanalytic perspectives on the first year of life: The establishment of the object in an affective field. In S.I. Greenspan & G.H. Pollock (Eds.), *The course of life (Vol. I): Infancy and early childhood.* Washington, DC: U.S. Government Printing Office, 1980. Pp. 113-128. DHHS Publication No. (ADM) 80-786.

Spitz, R.A. Hospitalism: A follow-up report. *Psychoanalytic Study of the Child,* 2. New York, NY: International Universities Press, 1946. Pp. 113-117.

Spitz, R. Anxiety in infancy: A study of its manifestations in the first year of life. *International Journal of Psychoanalysis,* 1950, 31, 138-143.

Spitz, R., & Wolf, K.M. Anaclitic depression: An inquiry into the genesis of psychiatric conditions in early childhood, II. *Psychoanalytic Study of the Child,* 1946, 2, 213-342.

Stechler, G.S., & Carpenter, G. A viewpoint on early affective development. In J. Hellmuth (Ed.), *The exceptional infant.* New York, NY: Brunner/Mazel, 1967.

Stern, D. Mother and infant at play. In M. Lewis & L.A. Rosenblum (Eds.), *The effect of the infant on its caregiver.* New York, NY: John Wiley and Sons, 1974. Pp. 187-213.

Stern, D. A microanalysis of mother-infant interaction: Behavior regulating social contact between a mother and her 3½ month old twins. In E. Rexford, L. Sander & T. Shapiro (Eds.), *Infant psychiatry.* New Haven, CT: Yale University Press, 1976. Pp. 113-126.

Thomas, A., Chess, S., & Birch, H.G. *Temperament and behavior disorders in children.* New York, NY: New York University Press, 1968.

Trickett, P., Apfel, N., Rosenblum, L., & Zigler, E. *A 5-year follow-up of participants in the Yale Child Welfare Research Program,* in press.

Wallerstein, J., & Kelly, J.B. The effects of parental divorce: The experience of the pre-school child. *Journal of the American Academy of Child Psychiatry,* 1975, 14(4), 600-616.

White, B. Critical influences on the origins of competence. *Merrill-Palmer Quarterly,* 1975, 21, 243-266.

White, R.W. Motivation reconsidered: The concept of competence. *Psychological Review,* 1959, 66, 297-333.

Wolff, P. The causes, controls and organization of behavior in the neonate. *Psychological Issues,* 1966, V(1), Monograph 17. New York, NY: International Universities Press, Inc.

Yarrow, L. Separation from parents during early childhood. In M.L. Hoffman & L.W. Hoffman (Eds.), *Review of child development research:* New York, NY: Russell Sage Foundation, 1964. Pp. 89-136.

Yarrow, L. Beyond cognition: The development of mastery motivation. In S. Provence (Ed.), Zero to three. *Bulletin of the National Center for Clinical Infant Programs,* March 1981, 1, 3.

Yarrow, L.J., Rubenstein, J.L., & Pederson, F.A. *Infant and environment: Early cognitive-and motivational development.* New York, NY: John Wiley and Sons, Halsted Division, 1975.

Yarrow, L.J., & Pederson, F.A. The interplay between cognition and motivation in infancy. In M. Lewis (Ed.), *Origins of intelligence.* New York, NY: Plenum Press, 1976. Pp. 379-399.

Zigler, E. Rigidity and social reinforcement effects in the performance of institutionalized and non-institutionalized normal and retarded children. *Journal of Personality,* June 1963, 31(2).