Infant Mental Health in Occupational Therapy Practice in the Neonatal Intensive Care Unit

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The work of supporting an infant's emotional development and mental health begins in the neonatal intensive care unit (NICU). It depends on understanding the family and uses the parallel processes involved in relationship building to maximize the environment for the optimal development of the infant in the NICU. Occupational therapy service provision is discussed in light of knowledge about the developmental work of the full-term neonates and their parents and the corresponding work of infants in the NICU and their families. A brief vignette of occupational therapy services provided in the context of a relationship-focused infant mental health model is included.

The neonatal intensive care unit (NICU) challenges the occupational therapist to respond to new theoretical understandings about how an infant's earliest experiences lay the foundation for later personality development (Greenspan & Lourie, 1981; Main, Kaplan, & Cassidy, 1985; Sander, 1962, 1964; Sroufe, 1979). The seeds of emotional well-being, another term for mental health, are sown in the NICU and are to be nurtured through caregiving and treatment interactions. Thus the nature of the relationships developed in the NICU between infants, parents, and professionals must be carefully considered.

The NICU provides an additional challenge to the occupational therapist because common pediatric occupational therapy concerns about muscle tone, head control, proper positioning, sucking, sensory integration, and motor behavior must now be considered within its highly technical environment. The fact that the NICU is the context of service provision and the environment in which early relationship development occurs affects everyone, from the infant and family to all the professional staff members.

In this paper, we present an infant mental health approach to early relationship development, support, and intervention, and propose its usefulness as a perspective for the clinical practice of occupational therapy in the NICU. Our discussion covers the infant mental health clinical perspective, the work of the neonate and his or her family, and how that work is changed when it has to be done in the NICU. A case vignette is presented to illustrate the theoretical concepts.

The Infant Mental Health Perspective

The conceptual framework for the infant mental health perspective is as firmly rooted in folk wisdom as it is in psychological theory. Maxims such as "as the twig is bent, the tree will grow" and "the apple doesn't fall far from the tree" are evidence of our recognition that experiences in early relationships clearly influence behavior in later relationships. Attachment theory, which provides a theoretical basis for the infant mental health perspective, suggests similar though more complex convictions. Intimate attachments to other human beings are the hub around which a person's life revolves, not only during infancy and school age, but also throughout adolescence, maturity, and old age (Bowlby, 1980).

In 1958, Bowlby published his original outline of attachment theory, "The Nature of a Child's Tie to His Mother." This paper challenged popular social theories of that time, which held that infants became psychologically dependent on those who fed them. In Bowlby's view, later expanded and delineated in his three-volume work, Attachment and Loss (1969, 1973, 1980), infants become psychologically attached to caregivers who interacted with them through consistent, close, and comforting interactions.
communication. Bowlby was convinced that the affectional bond that develops between mother and child is biologically rooted in a behavioral system that promotes the survival of the species through protecting its infants from harm (Bowlby, 1969).

Concurrently, and in early collaboration with Bowlby, Ainsworth began her theoretical and empirical investigation of infant security. In the course of her research, Ainsworth observed highly individualized and patterned caregiver-infant interactions. She proposed that it is the nature of these patterns, rather than the frequency of specific behaviors, that determines the quality (i.e., security) of the attachment relationship that develops (Ainsworth, 1973, 1979). Her authoritative work about patterns of attachment, including her landmark Baltimore study begun in 1965, served as a solid framework for subsequent attachment research and has continued to generate an impressive body of empirical evidence that supports attachment as an enduring bond rather than a collection of behaviors (Bretherton, 1985).

As empirical data began to accumulate regarding links between the patterning and quality of attachment in infancy and the quality of the child’s adaptation to later developmental challenges, attention was increasingly focused on the contributions of maternal responsiveness to the security and stability of the attachment relationship. Ainsworth (1982) reported one particular dimension of maternal behavior that emerged in the Baltimore study as being especially related to infant behavior across all subjects. That dimension was the degree of maternal sensitivity to infant cues during feeding, play, and periods of close physical contact. Blehar, Lieberman, and Ainsworth (1977) characterized the sensitive behavior of the mother to her securely attached child as contingent pacing. That is, as the signaling behavior of the developing infant changes, the responsive mother modifies her actions and allows time for her infant to respond to the modifications. In this way, she encourages her infant toward increasingly more complex interaction patterns while maintaining and strengthening a secure attachment relationship.

Sander (1962, 1975) explored the developmental concept of dyadic interaction in a longitudinal study of primiparous mothers and their infants from birth to age 3 years. Sander observed that the infant-caregiver relationship develops through a process of interactive negotiations that revolve around a series of increasingly complex issues. The earliest negotiations are chiefly predictable rhythms such as sleep, wakefulness, and feeding. Later issues focus on complex adaptation to mutual understandings about intentions, feelings, and expressions. The principal tenet is that in any dyadic interaction, each participant affects the behavior of the other.

The practical nature of the data generated by Ainsworth’s Baltimore study and related efforts strongly supports a conception of attachment as an organizational construct. Sroufe and Fleeson proposed that the infant’s earliest behavioral organization exists only as part of a dyadic system. Whatever individual characteristics are brought to the relationship, they are “subsumed and transmitted within the relationship and have little significance outside of it” (Sroufe & Fleeson, 1986, p. 52).

As empirical evidence gathers in support of the importance of the initial attachment relationship, a new area of focus has developed: the infant and parent at risk for poor relationship development (disordered attachment relationships). Mothers with histories of compromised relationships may find it difficult to adequately foster the development of their own infants’ healthy behavior patterns (Main et al., 1985). Infants with special medical or health needs and infants whose earliest experiences must occur in the NICU environment are likely to contribute to relationship difficulties (Trout & Foley, 1989). External stressors, too, such as extreme poverty, lack of family stability, or social isolation are known to have a compounding negative effect on newly developing relationships (Waters, 1978; Waters, Vaughn, & Egeland, 1980). Intervention offered to both mother and infant must also recognize the family as an interactive system; care must be taken to support the development of secure attachment relationships between all members of that system.

One intervention approach, which is often referred to as the Fraiberg model or the infant mental health model, is largely based on the theories and clinical experiences of Fraiberg (1980) and her colleagues. The theoretical rationale for the infant mental health model is based on convictions born out of our evolving understanding of attachment. A first tenet is that the infant’s central developmental task in the first year of life is to form an emotional relationship with a caregiver, whose complementary task is to encourage this relationship by providing appropriate and consistent physical and emotional nurturance and protection from harm. A second tenet is that the degree of security felt by the infant in this first relationship will be a powerful factor in the infant’s developing abilities to form other intimate relationships throughout the life span that are mutually nurturant and satisfying.

The intervention model originally developed by Fraiberg and her colleagues in the Child Development Project during the 1970s (Fraiberg, 1980) offers home-based services to mothers and infants from the time of pregnancy until the child is 3 years of age, as well as to their families who are at risk for poor relationship development. Interventionists are drawn from a variety of professional disciplines including education, social work, nursing, and psychology, and receive specialized training at the master’s or post-master’s degree level as an infant mental health specialist or infant–parent therapist. Their training includes preparation for a range of treatment strategies needed for effective infant–parent intervention (Weatherston & Tableman, 1989). The primary service strategies include emotional support to the caregiving parents,
The primary emotional task is the development of idealized images that provide a framework for envisioning their family relationships (Galinsky, 1987).

Since its inception, the Fraiberg Model has evolved from a treatment model into a goal-oriented intervention perspective. In the face of increasingly complex risks, needs, and community resource restrictions, the original home-based clinical treatment design has been expanded and adapted for use in a variety of settings by service providers with diverse primary professional identities. In seeking greater intervention effectiveness, these service providers share a wish to provide services for optimal growth and change within a relationship context.

The Work of the Neonate, the Family, and the NICU

The roots of attachment begin with the parental decision to conceive (Brazelton & Cramer, 1990). Conception and pregnancy herald the reassessment of major considerations—work, relationship with spouse and parents, and personal satisfaction. Ideally, both partners have made a decision to introduce a new life into their already existing family and have accepted those changes that can be envisioned. In addition, they have considered seriously and accepted new roles with respect to each other (i.e., of mutually supportive partners) in their work of nurturing a new life (Sammons & Lewis, 1985).

During the 40 weeks of pregnancy, each partner is involved in the work of image making (Galinsky, 1987). He or she is creating three images: one of him or herself as a parent; one of the other partner as a parent; and one of their infant. The occupational task (or work) of this period is to cul through past experiences with parents and children and examine and analyze those experiences to help them create these three images. The outcome is a set of idealized images that provide a framework for envisioning their family relationships (Galinsky, 1987).

The experience of birth hurls the couple into the next role that they must assume, that of primary nurturers. The occupational tasks of this period include:

- helping their new infant to organize his or her life
- providing for the physical needs of their infant
- providing an environment for the optimal emotional growth of their infant

The primary emotional task is the development of the special relationship that has come to be known as attachment.

To enable the infant to organize his or her life, parents must develop an ability to read their infant. As the primary caregivers, parents must know that their infant is sending cues about needs to eat, sleep, and so on; they must be able to recognize and interpret these cues. The ability to accomplish these tasks allows the parents to develop real images of themselves as competent caregivers. Furthermore, it allows the parents to build the image of the real infant who has joined their family as opposed to the idealized infant they envisioned during pregnancy (Sammons & Lewis, 1985).

While becoming attached to their infant, parents need to maintain their own identities. The attachment described by Bowlby is certainly a passionate, consuming experience, but it is not a loss of self; at best, it is a “changing sense of self” (Galinsky, 1987, p. 79).

The work of the neonate, from birth through 3 months, is to establish homeostasis or self-regulation. The infant must be able to regulate the multiple physiological subsystems (the biological processes concerned with feeding, sleeping, elimination, and postural maintenance). Sander (1962, 1964) has called the primary task of this developmental period physiological regulation; Greenspan and Lourie (1981) called it homeostasis.

All neonates have the task of differentiating their sleep and wake states and then developing some form of anticipatory rhythmicity. From birth, typical infants are able to experience regularly a state of alert inactivity. In this state they are physically quiet and alert; if other information-processing systems are normal, they can take in external events (Wolff, 1966). In this state, infants can use head turning, sucking, and looking to respond to new stimuli and to habituate to repeated stimuli (Stern, 1985).

These basic regulatory activities of the neonate have to be coordinated with the caregiver because no infant can thrive or even exist alone. The neonate and parents become partners in a reciprocal relationship that allows the infant to adapt to the extrauterine environment. It is the interactive nature of this environment that best supports the infant’s early motoric development.

Though still under the predominant influence of flexor tone, the typical neonate comes equipped at birth with a repertoire of motor activity. The infant can flex and extend arms and legs, can turn the head somewhat, and may show some hand-to-mouth movement patterns. The neonate can use this motoric stability to accomplish those specific eliciting behaviors noted previously (i.e., smiling, cuddling, etc.) Thus normal body tone, smooth limb movement, the grasp reflex, the stare (Morro) reflex, and the sucking reflex are the expected performance equipment of a neonate (Sammons & Lewis, 1985).

The work of the neonate then is to develop physiological state control and some degree of motor control and to begin the interactive work of attachment. Clearly, physiological stability is the first requirement; with the addition of motor skills, the neonate can attempt to deal with the physiological stress created by the work of social responsiveness in the development of an attachment.
The preceding discussion of the development of an attachment relationship between neonate and parents is the usual experience of a full-term infant of appropriate birth weight. An infant in the NICU has a very different beginning. Typically, the infant who needs to be in the NICU cannot control his or her internal processes. The reasons for an infant to be in the NICU are as individual as the infants themselves, but they all require special supports for their physiological needs. Given the tremendous technological advances in today's NICU, these processes can be either supported or replaced entirely, a reality that has serious implications for parents who expected to be primary caregivers and nurturers from the moment of birth.

The NICU environment is emotionally and physically different from what parents expect at the birth of their infant (Gottfried, Wallace-Lande, Sherman-Brown, King, & Coen, 1981; Gottfried, 1985; Gottfried & Hodgman, 1984; Lawson, Daum, & Turkewitz, 1977; Linn, Horowitz, Buddin, Leake, & Fox, 1985; Thomas, 1989). Being in the NICU means that the infant is sick, is premature, had very low birth weight, or is at risk for some other reason. This situation automatically and abruptly shatters the idealized infant image that the parents had created during pregnancy. Instead of the joy and exhilaration of new birth, parents often feel loss, pain, grief, and anxiety because their fantasy infant is gone. They may even feel denial, guilt, and anger (Goldson, 1992) toward what is often a small, fragile, unattractive infant. Parents of infants in the NICU have had their expectations jarred; they were ready to do the work of nurturing and caring, but now this work seems to require the involvement of professional caregivers.

The occupational task of helping the neonate become organized is impossible for the NICU parent at this point. Parents are often not allowed to perform their eagerly anticipated occupational tasks of touching, feeding, changing, and so on. For the sake of their infant's survival, they abdicate these roles for the moment and entrust them to the professional NICU staff members. What is left for them to do?

Clearly, one of the tasks of this period is for parents to adjust to the loss of their idealized infant and resolve their potential conflicts of biological incompetence, guilt, and, at best, ambivalence about this real infant. They must begin to do this work as they are relegated to the role of observers of caregiving, as physicians, nurses, occupational therapists, and physical therapists take their place.

The work of the parents of infants in the NICU is different from the work for which they had been preparing. Some parents in the NICU take on the role of technician first (Sammons & Lewis, 1985). They learn to watch monitors, try to interpret ventilator pressures, and become expert at checking and maintaining tubing and hos-

ing. This is understandable data; it is easier than trying to see and understand the behavioral changes in their infant.

Issues of weight gain and nutrition, of concern to parents of all neonates, are generally of paramount concern in the NICU. Families in the NICU want to be able to participate in some way in the feeding of their infant, but they often have to wait and they know that this is not normal.

Parents of infants in the NICU have had their major occupational roles preempted by the NICU staff members. At best, the parents have limited interaction with their infants that does not give them much feedback. They have little opportunity to use their own creativity and problem-solving capabilities for the protection of their infants, so it is even harder to rebuild an image of themselves as parents and to do the work of attachment.

Infants requiring NICU care behave differently than healthy neonates (Als, 1982; Als, 1986; Brazelton, 1984; Dubowitz & Dubowitz, 1981). Infants in the NICU are often neurologically immature, especially if they were premature. They are less organized in their motor behavior, do not necessarily maintain a gaze, may be difficult to rouse, cry less intensely, and lack the ability to cuddle, even if they are not connected to tubes and machines that can make holding and cuddling impossible. These infants may not be ready yet to send any cues to caregivers, let alone to do so consistently so that the caregiver can interpret and respond appropriately. Therefore, parents of infants in the NICU look to the staff members to help them get to know their infant.

Unlike the neonates without disability who are engaging as they snuggle, gaze, and even smile, the infants in the NICU usually lack normal tone and normal reflexes and they may respond to social overtures by averting their eyes or falling asleep. These behaviors are due to the infant's lack of preparation for the extrauterine environment (Sammons & Lewis, 1985). Preterm infants may be not only immature but also overly sensitive to sensory stimulation from the environment (Als, 1986). This information has widespread implications for even the most rudimentary social overtures that every parent considers appropriate role behavior. Someone needs to help parents in the NICU understand their infant's cues, which may be harder to read than they had expected, or longer in coming, or easily misinterpreted. Conversely, someone needs to help parents in the NICU to develop caregiving skills appropriate to their infant's condition in order to optimize their infant's interactive capabilities (Vergara, 1993). The goal of interaction between parent and infant is to negotiate a synchrony, a mutually satisfying and growth-stimulating attachment.

**Occupational Therapy Services**

Occupational therapy is one member of the team of
health care professions that provide services in the NICU. Vergara & Angley (1992) classified occupational therapy services in the NICU into three categories: infant-oriented, family-oriented, and therapist-oriented. Infant-oriented services have as their goal the optimal development of the infant's potential. Specifically, this goal involves environmental modulation, handling, positioning, feeding, and, often, splinting. Family-oriented services help the family to assist the infant in maximizing development. In this role, the occupational therapist uses knowledge of infant neurobehavior, understanding of medical interventions for fragile infants, and awareness of the occupational tasks of parenting, combined with a concern for the person who has social roles other than parent, to help parents succeed in caregiving tasks that result in their infant's growth and development. Therapist-oriented services require a plan to prevent therapist burnout and imply an understanding of the parallel processes that are at work during relationship building.

In the NICU the needs of the infant, the family, and the occupational therapist must be met to promote optimal relationship building. We believe that using an infant mental health clinical perspective will help ensure that services are provided to all three. In that spirit, we offer the following vignettes.

Vignettes

Felix and Sandra were newlyweds in their early 20s and expecting their first child. Both were in college and working part-time. Felix was undecided about a major and was classified by credit hours as a sophomore, but Sandra would be able to graduate in one more semester. However, about 8 weeks before her due date, Sandra had an emergency Cesarean section and Dana was born. Dana required placement in the NICU on a respirator for breathing.

During the period immediately after delivery, both parents visited frequently. They were clearly overwhelmed by this fragile infant's need for specialized care, but responded to the NICU staff members' encouragement and support with their presence and by cooperating with them in Dana's care.

As Dana's breathing difficulties resolved, it was noted that she had a poor suck and a referral was made to occupational therapy with problems of prematurity and poor suck. Two scenarios of service provision are described below. The second scenario highlights occupational therapy service provision within the context of a relationship-focused intervention model.

Scenario 1

The occupational therapist receiving the referral read Dana's chart, assessed her needs, and met with Felix and Sandra to identify herself and her services. She offered a treatment plan that included parent training in position-ing, special equipment needs for feeding, and some suggestions about early premature behavior in terms of motor and emotional development. The occupational therapist saw Dana for one-on-one treatment and then met with the parents to develop a feeding program that worked for them. Dana improved and was discharged from the hospital.

At discharge, Sandra appeared to feel uncomfortable about taking Dana home. She was silent and anxious but she did not ask for additional help. On the first day after discharge, Sandra phoned the NICU with some questions and vague concerns. The staff members were supportive and eager to help this couple make a good adjustment, but Sandra called back every day for the next week, often in tears, wondering whether Dana was really taking enough to eat. A referral was made to the public health nurse for a home visit. The public health nurse reported that Sandra seemed frightened and alone. Sandra also complained that Felix had begun to spend his study time in the library, saying that the infant's cries made him unable to concentrate.

Scenario 2

The occupational therapist received the same referral for Dana. After reading the chart, she met with Felix, Sandra, and Dana for an informal observation assessment. During this time she noted the interactions of the family members and invited Felix and Sandra to share their thoughts and feelings about Dana, as well as their own reactions to the delivery, the NICU experience, and their feelings about themselves as new parents of an unexpectedly premature infant. During this time Sandra expressed her concern that she could not get Dana to wake up, which made feeding hard to initiate.

As Sandra and Felix talked, the occupational therapist had already begun her assessment of Dana's problems. She noted that Dana was hard to rouse and required short feeds without additional sensory input (i.e., her parents talked to her and stroked her while trying to feed her and Dana fell asleep). The occupational therapist observed and commented to Felix and Sandra that Dana did not appear to like being talked to, touched, and fed at the same time. She wondered if they had noticed this as well. She commented that it is normal for premature infants not to be able to handle much stimulation; they often need a break and sometimes fall asleep as a result. The occupational therapist supported Sandra and Felix's efforts to help Dana and stressed the importance of their feeding efforts, even as she offered her own expertise in understanding behaviors of premature infants. The occupational therapist helped Dana's parents to see Dana's behavior, which they had interpreted as a rejection of them, with new eyes, thus averting an even more tenuous relationship than the NICU circumstances had already necessitated.
As in scenario 1, Dana improved and was discharged.

Upon a routine follow-up clinic visit 2 weeks later, it was noted that both Sandra and Felix seemed comfortable holding Dana and that she was gaining weight. Sandra and Felix expressed appreciation for the care that Dana and they had received from the staff members of the NICU.

Scenario 1 represents provision of service in which there is much talking to instead of talking with. The infant mental health approach demonstrated in scenario 2 is helpful in structuring the provision of services so that they can more readily be accepted. In addition, scenario 1 represents a situation in which parents and infant are seen at different times. In scenario 2, the family is clearly the client and so the members are seen together. Finally, the emphasis in scenario 2 is always on the relationship that is being developed between a premature infant and her parents. The developmental levels of each of the participants are prominent in the mind of the occupational therapist, who realizes that her most important goal is to help these new parents fall in love with their infant.

Occupational therapy services have helped to set the course for infant–parent closeness within the NICU and even beyond. Additionally, this interaction has provided a framework for ongoing parent, infant, and professional interaction, should it be required.

The relationship framework is the seminal issue in the infant mental health approach to service provision. Bronfenbrenner (1992) stated that the processes of interaction, which he referred to as proximal processes, are of primary significance to all aspects of the infant's development. He defined proximal processes as those "emotionally-loaded, reciprocal interactions that take place between an active, growing human organism and the persons, objects, and symbols in its immediate environment" (Bronfenbrenner, 1992, p. 32).

Summary
In this article we highlighted the development of the relationship between infants and parents who begin their lives together within the context of the NICU, discussed the occupational tasks (the work) of each, and delineated occupational therapy services in the NICU. We illustrated the parallel process of relationship development between the occupational therapist and the family, thus completing a relationship-focused model for effective service provision in the NICU. Occupational therapy services offered in the context of this model support and promote the development of secure infant–parent attachment relationships, the foundation for early emotional well-being that we have referred to as infant mental health.

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