INFANCY AND TODDLERHOOD

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KEY IDEAS

As you read this chapter, take note of these central ideas:

1. Although growth and development in young children have some predictability and logic, the timing and expression of many developmental skills vary from child to child and depend in part on the environment and culture in which the child is raised.

2. Physical growth, brain development, and the development of sensory abilities and motor skills are all important aspects of physical development in infants and toddlers.

3. According to Piaget, infants and toddlers are in the sensorimotor stage of cognitive development, responding to what they hear, see, taste, touch, smell, and feel.

4. Erikson describes two stages of psychosocial development relevant to infants and toddlers, each with its own central task: trust versus mistrust (birth to age 1½) and autonomy versus shame and doubt (1½ to 3 years).

5. The attachment relationship between infants and toddlers and their caregivers can affect brain development.

6. Researchers have found that children who live in poor economic conditions face serious risks to development in all dimensions.

7. Prenatal care, diet, parental education, and social support are thought to influence infant mortality rates in the United States.

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Case Study 3.1

Although Marilyn Hicks had been very careful with her diet, exercise, and prenatal care during pregnancy, Holly arrived at 23 weeks’ gestation, around 6 months into the pregnancy. Initially she weighed 3 pounds, 11 ounces, but she quickly lost the 11 ounces. Immediately after birth, Holly was whisked away to the neonatal unit in the hospital, and her parents had just a quick peek at her. The assigned social worker’s first contact with Marilyn and Martin Hicks, an Anglo couple, was in the neonatal unit. Although Marilyn Hicks began to cry when the social worker first spoke with her, overall both parents seemed to be coping well and had all their basic needs met at that time. The social worker left his business card with them and instructed them to call if they needed anything.

Despite her early arrival, Holly did not show any signs of medical problems, and after 6 weeks in the neonatal unit, her parents were able to take her home. The social worker wisely allowed the newly formed Hicks family time to adjust, and in keeping with the policy of the neonatal program, scheduled a follow-up home visit within a few weeks.

When the social worker arrives at the house, Marilyn Hicks is at the door in tears. She states that taking care of Holly is much more than she imagined. Holly cries “constantly” and does not seem to respond to Mrs. Hicks’s attempts to comfort her. In fact, Mrs. Hicks thinks that Holly cries even louder when her mother picks her up or tries to cuddle with her. Mrs. Hicks is very disappointed, because she considers herself to be a nurturing person. She is unsure how to respond to Holly’s “rejection of her.” The only time Holly seems to respond positively is when Mrs. Hicks breastfeeds her.

Mrs. Hicks has taken Holly to the pediatrician on several occasions and has discussed her concerns. The doctor told her that nothing is physically wrong with Holly and that Mrs. Hicks has to be more patient.

Mrs. Hicks confides during this meeting that she read some horrifying material on the Internet about premature infants. According to the information she read, premature infants often have difficulty bonding with their caretaker, which in some children may ultimately result in mental health and emotional problems. Mrs. Hicks is concerned that this is the case with Holly.

This social worker must take into consideration that in addition to her fears, Mrs. Hicks must be exhausted. Her husband returned to work shortly after the baby came home, and Mrs. Hicks has not left the house since then. She tried taking a break once when her aunt came for a visit, but Holly cried so intensely during this time that her aunt refused to be left alone with Holly again. The social worker must now help Mrs. Hicks cope with the powerful feelings that have been aroused by Holly’s premature birth, get any needed clarification on Holly’s medical condition, and find ways to get Mrs. Hicks a break from caregiving. He will also want to help her to begin to feel more confident about her ability to parent Holly.
Case Study 3.2

Sarah’s Teen Dad

Chris Johnson is the only dad in the teen fathers group, facilitated by the social worker at a local high school, who has sole custody of his infant daughter. Initially, Sarah, Chris’s daughter, lived with her mom and maternal grandparents. Chris was contacted by the social worker from Child Protective Services (CPS) who informed him that Sarah was removed from the mom’s care due to physical neglect. The referral to CPS was made when Sarah was seen in a pediatric clinic and the medical staff noticed that she had not gained weight since the last visit, and was generally unresponsive in the examination. Further investigation by the CPS worker revealed that Sarah was left in her crib for most of the day, and few of Sarah’s basic daily care needs were being fulfilled. Although Chris’s contact with Sarah had been sporadic since her birth, he did not hesitate to pursue custody, especially given that the only other alternative was Sarah’s placement in foster care. Chris’s parents were also supportive of Chris’s desire to have Sarah live with all of them. However, although they were willing to help, they were adamant that the responsibility for Sarah’s care belonged to Chris, not them. They were unwilling to raise Sarah themselves and in fact required Chris to sign a written statement indicating that he, not them, would assume primary responsibility for Sarah’s care. Chris’s parents also insisted that he remain in school and earn his high school diploma.

Thus far the situation seems to be working well. At the last medical appointment, Sarah’s weight had increased significantly and she responded to the nurse’s attempts to play and communicate with her. Chris is continuing his education at the alternative high school, which also has a day care for Sarah. Chris admits that it is much more difficult than he anticipated. He attends school for half the day, works a part-time job the other half, and then has to care for Sarah in the evenings. Chris has shared several times in the group that it is a lot for him to juggle. He still mourns the loss of his freedom and “carefree” lifestyle. Like most of the other teen dads in the group, whether they physically live with the child or not, Chris is concerned about doing the best he can for Sarah; he states that he just wants to be a good dad.

Case Study 3.3

Overprotecting Henry

Irma Velasquez is still mourning the death of her little girl Angel, age 2, who was killed when a stray bullet came into their home through the living room window. Although it has been about a year since the incident, no one has been arrested. The police do know, however, that neither Ms. Velasquez’s daughter nor her family was the intended victim. The stray bullet was the result of a shoot-out between two rival drug dealers in the family’s neighborhood.

Ms. Velasquez is just glad, now, that 14-month-old Henry was in his crib in the back of the house instead of in the living room on that horrible evening. He had fallen asleep in her lap a few minutes before but she had just returned from laying him in his crib when the shooting occurred. Irma Velasquez confides in her
Healthy Development in Infants and Toddlers

What happens during the prenatal period and the earliest months and years of a child’s life has lasting impact on the life course journey. In the earliest moments, months, and years, interactions with parents, family members, and other adults and children influence the way the brain develops, as do such factors as nutrition and environmental safety. Although it is never too late to improve health and well-being, what happens during infancy and toddlerhood sets the stage for the journey through childhood, adolescence, and adulthood. We were all infants and toddlers once, but sometimes, in our work as social workers, we may find it hard to understand the experience of someone 2 years old or younger. (Young children are typically referred to as infants in the first year, but as they enter the second year of life and become more mobile, they are usually called toddlers, from about 12 to 36 months of age.) As adults, we have become accustomed to communicating with words, and we are not always sure how to read the behaviors of the very young child. And we are not always sure how we are to behave with them. The best way to overcome these limitations, of course, is to learn what we can about the lives of infants and toddlers.

In all three of the case studies at the beginning of this chapter, factors can be identified that may adversely affect the children’s development. However, we must begin by understanding what is traditionally referred to as “normal” development. But because normal is a relative term with some judgmental overtones, we will use the term healthy instead.

Social workers employed in schools, hospitals, community mental health centers, and other public health settings are often approached by parents and teachers with questions about development in young children. To assess whether any of the children they bring to your attention require intervention, you must be able to distinguish between healthy and problematic development in three areas: physical, cognitive, and socioemotional development. As you will see, young children go through a multitude of changes in all three areas simultaneously. Inadequate development in any one of them—or in multiple areas—may have long-lasting consequences for the individual.
Keep in mind, however, that what is considered to be healthy is relative to environment and culture. Every newborn enters a world with distinctive features structured by the social setting that he or she encounters (Rogoff, 2003; Valsiner, 2000). Therefore, all aspects of development must be considered in a cultural context.

To make the presentation of ideas about early childhood manageable, this chapter follows a traditional method of organizing the discussion by type of development: physical development, cognitive development, emotional development, and social development. In this chapter, emotional development and social development are combined under the heading Socioemotional Development. Of course, all these types of development and behavior are interdependent, and often the distinctions blur.

Physical Development

Newborns depend on others for basic physical needs. They must be fed, cleaned, and kept safe and comfortable until they develop the ability to do these things for themselves. At the same time, however, newborns have an amazing set of physical abilities and potentials right from the beginning.

In Case Study 3.2, the pediatrician and CPS social worker were concerned that Sarah Johnson was not gaining weight. With adequate nourishment and care, the physical growth of the infant is quite predictable. Infants grow very rapidly throughout the first two years of life, but the pace of growth slows a bit in toddlerhood. The World Health Organization (WHO) undertook a project, called the Multicentre Growth Reference Study (MGRS), to
construct standards for evaluating children from birth through 5 years of age. One part of that project was to construct growth standards to propose how children should grow in all countries, of interest because of WHO’s commitment to eliminate global health disparities. MGRS collected growth data from 8,440 affluent children from diverse geographical and cultural settings, including Brazil, Ghana, India, Norway, Oman, and the United States. To be eligible for the study, mothers needed to be breastfeeding and not smoking, and the environment needed to be adequate to support unconstrained growth.

The researchers found that there were no differences in growth patterns across sites, even though there were some differences in parental stature. Given the striking similarity in growth patterns across sites, they concluded that the data could be used to develop an international standard. Across sites, the average length at birth was 19.5 inches (49.5 cm), 26.3 inches (66.7 cm) at 6 months, 29.5 inches (75.0 cm) at 12 months, and 34.4 inches (87.4 cm) at 24 months (WHO Multicentre Growth Reference Study Group, 2006a). By 1 year of age, infant height was about 1.5 times birth height, and by 2 years, the toddler had nearly doubled the birth height.

In terms of weight, most newborns weigh between 5 and 10 pounds at birth. Infants triple their weight in the first year, and by age 2 most infants are quadruple their original weight. Thus, the average 2-year-old weighs between 20 and 40 pounds. Evidently, the size of individual infants and toddlers can vary quite a bit. Some of the difference is due to nutrition, exposure to disease, and other environmental factors; much of it is due to genetics. Some ethnic differences in physical development have also been observed. For example, Asian American children tend to be smaller than average, and African American children tend to be larger than average (Tate, Dezateux, Cole, and the Millennium Cohort Study Child Health Group, 2006). In recent years, there has been a great deal of concern about rapid weight gain during the first 6 months, which has been connected to overweight by age 4 and to several chronic diseases in adulthood. Researchers have found Hispanic American infants to be twice as likely as other infants in the United States to have this pattern of early rapid weight gain (Dennison, Edmunds, & Stratton, 2006). The WHO child weight growth standards, calculated by different methods, can be found at www.who.int/childgrowth.

Self-Regulation

Before birth, the bodily functions of the fetus are regulated by the mother’s body. After birth, the infant must develop the capacity to engage in self-regulation (Davies, 2004; Shonkoff & Phillips, 2000). At first, the challenge is to regulate bodily functions, such as temperature control, sleeping, eating, and eliminating. That challenge is heightened for the premature or medically fragile infant, as Holly’s mother is finding.

As any new parent will attest, infants are not born with regular patterns of sleeping, eating, and eliminating. With maturation of the central nervous system in the first 3 months, and with lots of help from parents or other caregivers, the infant’s rhythms of sleeping, eating, and eliminating become much more regular (Davies, 2004). A newborn usually sleeps about 16 hours a day, dividing that time evenly between day and night. Of course, this is not a good fit with the way adults organize their sleep lives. At the end of 3 months, most infants are sleeping 14 to 15 hours per day, primarily at night, with some well-defined nap times during the day. Parents also gradually shape infants’ eating schedules so that they are eating mainly during the day.
There are cultural variations in, and controversies about, the way caregivers shape the sleeping and eating behaviors of infants. In some cultures, infants sleep with parents, and in other cultures, infants are put to sleep in their own beds and often in their own rooms. In some cultures, putting an infant to sleep alone in a room is considered to be neglectful (Korbin, 1981). There are also cultural variations and controversies about breastfeeding versus bottle feeding. It is interesting to note that both breastfeeding and sleeping with parents induce shorter bouts of sleep and less sound sleep than the alternatives (Shonkoff & Phillips, 2000). Some researchers have speculated that the infant’s lighter and shorter sleep pattern may protect against sudden infant death syndrome (SIDS). Of course, parents sleeping with infants must be aware of the hazard of rolling over and suffocating the infant. Luckily, parents have also been found to sleep less soundly when they sleep with infants (Shonkoff & Phillips, 2000).

Parents become less anxious as the infant’s rhythms become more regular and predictable. At the same time, if the caregiver is responsive and dependable, the infant becomes less anxious and begins to develop the ability to wait to have needs met.

There are cultural variations in beliefs about how to respond when infants cry and fuss, whether to soothe them, or leave them to learn to soothe themselves. When parents do attempt to soothe infants, interestingly, they seem to use the same methods across cultures: “They say something, touch, pick up, search for sources of discomfort, and then feed” (Shonkoff & Phillips, 2000, p. 100). Infants who have been consistently soothed usually begin to develop the ability to soothe themselves after 3 or 4 months. This ability is the precursor to struggles for self-control and mastery over powerful emotions that occur in toddlerhood.

**Sensory Abilities**

Full-term infants are born with a functioning *sensory system*—the senses of hearing, sight, taste, smell, touch, and sensitivity to pain—and these abilities continue to develop rapidly in the first few months. Indeed, in the early months the sensory system seems to function at a higher level than the motor system, which allows movement. The sensory system allows infants, from the time of birth, to participate in and adapt to their environments. A lot of their learning happens through listening and watching (Newman & Newman, 2006; Novak & Pelaez, 2004). The sensory system is an interconnected system, with various sensory abilities working together to give the infant multiple sources of information about the world.

*Hearing* is the earliest link to the environment; in the uterus the fetus is sensitive to auditory stimulation. Newborns show a preference for their mother’s voice over other female voices (De Casper & Fifer, 1980). Young infants can also distinguish changes in loudness, pitch, and location of sounds (Kuhl, 1987), and they appear to be particularly sensitive to language sounds.

The newborn’s *vision* improves rapidly during the first 4 months. By about the age of 4 months, the infant sees objects the same way that an adult would. Of course, infants do not have the same cognitive associations with objects that adults have. Infants respond to a number of visual dimensions, including depth, brightness, movement, color, and distance. Human faces have particular appeal for newborns. One to two days after birth, infants are able to discriminate among—and even imitate—happy, sad, and surprised expressions, but this ability wanes after a few weeks (Field, Woodson, Greenberg, & Cohen, 1982). By 3 months, most infants are able to distinguish a parent’s face from the face of a stranger (Zucker, 1985).
Some researchers have found that infants are distressed by a lack of facial movement in the people they look at, showing that they prefer caregivers to have expressive faces (Muir & Lee, 2003).

Taste and smell begin to function in the uterus, and newborns can differentiate sweet, bitter, sour, and salty tastes. Sweet tastes seem to have a calming effect on newborns (Blass & Ciaramitaro, 1994). Breastfed babies are particularly sensitive to their mother’s body odors.

Both animal and human research tells us that touch plays a very important role in infant development. In many cultures, swaddling, or wrapping a baby snugly in a blanket, is used to soothe a fussy newborn. We also know that gentle handling, rocking, stroking, and cuddling are all soothing to an infant. Regular gentle rocking and stroking have been very effective in soothing low birth weight (LBW) babies, who may have underdeveloped central nervous systems. Infants also use touch to learn about their world and their own bodies. Young infants use their mouths for exploring their worlds, but by 6 months of age, infants can make controlled use of their hands to explore objects in their environment (Blass & Ciaramitaro, 1994).

There is clear evidence that from the first days of life, babies feel pain. Recently, pediatric researchers have been studying newborn reactions to medical procedures such as heel sticks, the sticks used to draw blood for lab analysis. One researcher found that newborns who undergo repeated heel sticks learn to anticipate pain and develop a stronger reaction to pain than other infants (Taddio, Shah, Gilbert-Macleod, & Katz, 2002). These findings are leading pediatricians to reconsider their stance on the use of pain medications with newborns.

Reflexes

Although dependent on others, newborns are equipped from the start with tools for survival that are involuntary responses to simple stimuli, called reflexes. Reflexes aid the infant in adapting to the environment outside the womb.

Newborns have two critical reflexes:

1. Rooting reflex. When infants’ cheeks or the corners of their mouths are gently stroked with a finger, they will turn their head in the direction of the touch and open their mouths in an attempt to suck the finger. This reflex aids in feeding, because it guides the infants to the nipple.

2. Sucking reflex. When a nipple or some other suckable object is presented to the infant, the infant sucks it. This reflex is another important tool for feeding.

Many infants would probably perish without the rooting and sucking reflexes. Imagine the time and effort it would require for one feeding if they did not have them. Instead, infants are born with the ability to take in nutriment.

Reflexes disappear at identified times during infancy (see Exhibit 3.1). Both the rooting reflex and sucking reflex disappear between 2 and 4 months (Newman & Newman, 2006). By this time, the infant has mastered the voluntary act of sucking and is therefore no longer in need of the reflexive response. Several other infant reflexes appear to have little use now, but probably had some specific survival purposes in earlier times.

Reflexes are important in the evaluation of neurological functioning. The absence of reflexes can indicate a serious developmental disorder. Given Holly Hicks’s early arrival, her reflex responses were thoroughly evaluated.
Motor Skills

The infant gradually advances from reflex functioning to motor functioning. The development of motor skills—the ability to move and manipulate—occurs in a more or less orderly, logical sequence. It begins with simple actions such as lifting the chin and progresses to more complex acts such as walking, running, and throwing. Infants usually crawl before they walk.

Motor development is somewhat predictable, in that children tend to reach milestones at about the same age and in the same sequence. As a part of the MGRS, WHO undertook a project to construct standards for evaluating the motor development of children from birth through 5 years of age. MGRS collected longitudinal data on six gross motor milestones of children ages 4 to 24 months in Ghana, India, Norway, Oman, and the United States. The milestones studied were sitting without support, standing with assistance, hands-and-knees crawling, walking with assistance, standing alone, and walking alone. Because WHO was trying to establish standards for evaluating child development, healthy children were studied in all five study sites. The researchers found that 90% of the children achieved five of the six milestones in the same sequence, but 4.3% of the sample never engaged in hands-and-knees crawling (WHO Multicentre Growth Reference Study Group, 2006b).

Based on the data collected, MGRS developed “windows of milestone achievement” for each of the six motor skills, with achievement at the 1st and 99th percentiles as the window boundaries. All motor achievement within the windows is considered normal variation in ages of achievement for healthy children. The windows of achievement for the six motor skills studied are reported in Exhibit 3.2. The results reveal that the windows vary from 5.4 months for sitting without support to 10.0 months for standing alone. This is quite a wide range for normal development and should be reassuring to parents who become anxious if their child is not at the low end of the window. Many parents, for example, become
concerned if their child has not attempted to walk unassisted by age 1. However, some children walk alone at age 9 months; others do not even attempt to walk until almost 18 months.

**Photo 3.2**  Fine motor skills, the ability to move and manipulate objects, develop in a logical sequence.

Culture and ethnicity appear to have some influence on motor development in infants and toddlers. MGRS found that girls were slightly ahead of boys in gross motor development but the differences were not statistically significant. They did find small, but statistically significant differences in fine motor skills.
significant, difference between sites of the study, however. The researchers speculate that these differences probably reflect culture-based child care behaviors, but the cause cannot be determined from the data, and a genetic component is possible. The earliest mean age of achievement for four of the six milestones occurred in the Ghanaian sample, and the latest mean age of achievement for all six milestones occurred in the Norwegian sample (WHO Multicentre Growth Reference Study Group, 2006c). The U.S. sample mean was in the middle range on all milestones except for hands-and-knees crawling, where it had the lowest mean achievement.

The development of motor skills (and most other types of skills, for that matter) is a continuous process. Children progress from broad capacities to more specific refined abilities. For example, toddlers progress from eating cereal with their fingers to eating with a spoon.

Parents are usually quite patient with their child's motor development. However, toilet training (potty training) is often a source of stress and uncertainty for new parents. Every human culture has mechanisms for disposing of human waste and socializes infants and toddlers to that method. One of the basic issues in this socialization is whether it should be in the hands of the child or the caregiver (Valsiner, 2000). In the United States until recently, many child development experts recommended that babies be potty trained during the first year of life. Consequently, many parents exercised strong measures, including scolding and punishment, to ensure timely toilet training. Even now, many grandparents proudly report that they tied their infants to the potty chair at times of predicted elimination (after eating, for example) until the child was able to master the skill. T. Berry Brazelton (1983), one of the best known pediatricians in the United States, endeavored to change this negative perspective. He advocated that parents begin potty training during the second year of life, during the lull time after standing and walking have been accomplished. Only then, he says, is the infant physically and psychologically ready to master this skill. That is the current position of the American Academy of Pediatrics (1999) who recommends waiting until the child is ready and guiding toilet training in a systematic way, beginning with bowel training. By age 3, most children have mastered toilet training, but even 5-year-olds are still prone to soiling accidents. It should be noted, however, that in some parts of the world there is a perception of readiness at a much earlier age (Valsiner, 2000).

The Growing Brain

Like the brains of other primates, human brains contain neurons, or nerve cells that store and transmit information (Huttenlocher & Kabholkar, 1997). Between these neurons are synapses, or neural connections, through which information is transported. During the prenatal period, the brain overproduces neurons in massive numbers. In fact, the human newborn has more synapses than the human adult. During infancy and toddlerhood, each neuron joins with thousands of other neurons to form a colossal number of synapses or connections. The period of overproduction of synapses, or blooming, is followed by a period of pruning, or reduction, of the synapses to improve the efficiency of brain functioning. It is through this process of creating elaborate communication systems between the connecting neurons that more and more complex skills and abilities become possible. Thus, during these early years of life, children are capable of rapid new learning. The blooming and pruning of synapses process continues well into childhood and adolescence at different timetables in different regions of the brain. For example, overproduction of synapses in the visual cortex of the brain peaks in the fourth month after birth, and pruning in that region
continues until sometime toward the end of the early childhood period (Huttenlocher & Kabholkar, 1997). By contrast, in the medial prefrontal cortex part of the brain, where higher-level cognition and self-regulation take place, synaptic blooming peaks at about 1 year of age, and pruning continues until middle to late adolescence.

The available evidence suggests that both genetic processes and early experiences with the environment influence the timing of brain development (Thompson & Nelson, 2001). For example, exposure to speech in the first year expedites the discrimination of speech sounds; exposure to patterned visual information in the first few years of life is necessary for normal development of some aspects of vision. Some suggest that the entire infancy period is a crucial and sensitive time for brain development, given the quantity and speed at which the neurons develop and connect (Zigler, Finn-Stevenson, & Hall, 2002). Positive physical experiences (feeding, safety, etc.) and positive psychological experiences (touching, cooing, and playing) activate and simulate brain activity (Shonkoff & Phillips, 2000). So good nutrition and infant stimulation are essential for brain development, and exposure to environmental toxins, abuse, emotional trauma, and deprivation is hazardous (Shonkoff & Phillips, 2000; Teicher, 2002; Zigler et al., 2002).

There are risks to brain development associated with prematurity. Premature infants born at 24 to 28 weeks gestation have high rates of serious intracranial hemorrhage, which can lead to problems in cognitive and motor development, including cerebral palsy and mental retardation. Less serious intracranial hemorrhage can lead to later behavioral, attentional, and memory problems (Shonkoff & Phillips, 2000). Also, the premature infant faces the challenging environment of the neonatal intensive care unit (NICU) at a time when the brain is developing rapidly. With this in mind, architects and neonatalists have been working together in recent years to make the NICU a more nurturing environment for this rapid brain development (Zeisel, 2006). It is not yet clear whether Holly Hicks suffered any type of brain hemorrhage and what impact it will have on her future development if she did.

Recent research has focused on the relationship between infant/parent attachment and brain development. One of the most popular perspectives on this issue is presented in a book entitled, *Why Love Matters, How Affection Shapes a Baby's Brain*, by Sue Gerhardt (2004). The premise here is that without affection and bonding, the frontal cortex of the brain cannot develop. The connection between attachment and brain development is discussed in more detail in the attachment section of this chapter.

### Childhood Immunizations

**Immunization**, also called vaccination or inoculation, is a method of administering microorganisms, bacteria, or viruses that have been modified or killed to protect humans from disease. Most vaccinations are administered by injection. The purpose of immunization is to stimulate the body’s immune system to build a defense against a specific disease.

Important breakthroughs in vaccine development have led to eradication or near eradication of such life-threatening diseases as smallpox, polio, diphtheria, and tetanus, and this has been a boon to health during infancy, toddlerhood, and early childhood (Betts, 2002). Since the early 1980s, the development of vaccines has proliferated, and vaccines have now been developed for much less serious childhood illnesses such as mumps, measles, rubella, and chickenpox. The development of these new vaccines has resulted in an increase...
in the total number of vaccinations administered to young children. The National Vaccine Information Center (NVIC) reports that currently 34 doses of 10 different vaccines are administered before the child’s fifth birthday.

Since the 1980s, some child advocates have challenged both the quality and quantity of vaccinations being administered. They suggest that the increased use of immunization has become harmful to many children, both because of the quantity of vaccines being taken and because of inadequate vaccine safety research. One supporter is Congressman Dan Burton, from Indiana, who joined with these advocacy groups to argue for vaccine reform by the federal government. His interest in the issue of vaccines developed when a granddaughter became seriously ill after receiving a hepatitis B shot and a grandson became autistic at age 14 months after receiving nine vaccines on one day (Betts, 2002).

Three vaccines have been targeted by child advocates as most questionable: the hepatitis B vaccine; the measles, mumps, rubella (MMR) vaccine; and the pertussis (whooping cough) portion of the diphtheria, pertussis, tetanus (DPT) vaccine. The hepatitis B vaccine has been linked to a number of serious health problems, and in 1998, France became the first country to discontinue requirement of hepatitis B vaccination for school-age children. Some researchers have linked the pertussis portion of the DPT to SIDS. The MMR vaccine is suspected as playing a role in the rapid increase of autism since the 1980s, an increase from 1 in 2,500 children before 1980 to 1 in 150 children currently (NVIC, n.d.). The practice of adding thimerosol as a preservative in multidose vaccines has been a particular concern of the child advocacy groups. Thimerosol is 49% mercury, and mercury is known to cause neurological damage. Mercury in vaccines was banned in the United Kingdom, Finland, and Sweden by 1995 and in the United States in 1999.

Most parents are unaware of the immunization controversy, but the debate over immunization safety creates hard decisions for those parents who are aware. They want to protect their children from the harmful effects of disease, but they do not welcome potential harms from vaccines. Some researchers argue that the benefits of immunizations outweigh the hazards, and many health care workers fear the public health consequences if parents begin to avoid immunizing their young children (Trifiletti, 2001). Additionally, many public school systems do not allow children to be admitted without up-to-date vaccinations. Luckily, both scientists and government reformers are currently investigating the issue of vaccine safety as this book is being written. On the basis of the above discussion about early brain development, vaccine safety is an important issue in infancy and toddlerhood. Some infants and toddlers will be more vulnerable than others to multiple doses of multiple vaccines.

**Cognitive Development**

As the brain develops, so does its ability to process and store information and to solve problems. These abilities are known as **cognition**. When we talk about how fast a child is learning, we are talking about cognitive development. Researchers now describe the infant as “wired to learn,” and agree that infants have an intrinsic drive to learn and to be in interaction with their environments (Shonkoff & Phillips, 2000). A central element of cognition is language, which facilitates both thinking and communicating. Exhibit 3.3 lists some milestones in cognitive development.
Piaget’s Stages of Cognitive Development

To assess children’s cognitive progress, many people use the concepts developed by the best-known cognitive development theorist, Jean Piaget (1952). Piaget believed that cognitive development occurs in successive stages, determined by the age of the child. His overall contention was that as a child grows and develops, cognition changes not only in quantity but also in quality.

Piaget used the metaphor of a slow-motion movie to explain his theory, which is summarized in Exhibit 3.4 as follows:

1. **Sensorimotor stage** (ages birth to 2 years). Infants at this stage of development can look at only one frame of the movie at a time. When the next picture appears on the screen, infants focus on it and cannot go back to the previous frame.

2. **Preoperational stage** (ages 2 to 7). Preschool children and children in early grades can remember (recall) the sequence of the pictures in the movie. They also develop **symbolic functioning**—the ability to use symbols to represent what is not present. However, they do not necessarily understand what has happened in the movie or how the pictures fit together.

3. **Concrete operations stage** (ages 7 to 11). Not until this stage can children run the pictures in the movie backward and forward to better understand how they blend to form a specific meaning.

4. **Formal operations stage** (ages 11 and beyond). Children gain the capacity to apply logic to various situations and to use symbols to solve problems. Adding to Piaget’s metaphor, one cognitive scientist describes formal operations as the ability of the adolescent not only to understand the observed movie but also to add or change characters and create an additional plot or staging plan (Edwards, 1992).
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The first of Piaget’s stages applies to infants and toddlers. During the sensorimotor period, they respond to immediate stimuli—what they see, hear, taste, touch, and smell—and learning takes place through the senses and motor activities. Piaget suggests that infant and toddler cognitive development occurs in six substages during the sensorimotor period.

Substage 1: Reflex Activity (birth to 1 month). Because reflexes are what the infant can “do,” they become the foundation to future learning. Reflexes are what infants build on.

Substage 2: Primary Circular Reactions (1 to 4 months). During this stage, infants repeat (thus the term circular) behaviors that bring them a positive response and pleasure. The infant’s body is the focus of the response, thus the term primary. If, for example, infants by chance hold their head erect or lift their chest, they will continue to repeat these acts because they are pleasurable. Infants also have limited anticipation abilities.

Substage 3: Secondary Circular Reactions (4 to 8 months). As in the second substage, the focus is on performing acts and behaviors that bring about a response. In this stage, however, the infant reacts to responses from the environment. If, for example, 5-month-old infants cause the rattle to sound inadvertently as their arms move, they will continue attempts to repeat this occurrence.

Substage 4: Coordination of Secondary Circular Reactions (8 to 12 months). The mastery of object permanence is a significant task during this stage. Piaget contended that around 9 months of age, infants develop the ability to understand that an object or a person exists even when they don’t see it. Piaget demonstrated this ability by hiding a favored toy under a blanket. Infants are able to move the blanket and retrieve the toy. Object permanence is related to the rapid development of memory abilities during this period (Rovee-Collier, 1999). Two other phenomena are related to this advance in memory. Stranger anxiety, in which the infant reacts with fear and withdrawal to unfamiliar persons, has been found to occur at about 9 months across cultures. Many first-time parents comment, “I don’t know what has gotten into her; she has always been so outgoing.” Babies vary in how intensely they react to the strange situation and in how they express their anxiety (Rieser-Danner, 2003). Separation anxiety also becomes prominent in this period. The infant is able to remember previous separations.
and becomes anxious at the signs of an impending separation from parents. With time, the infant also learns that the parent always returns.

Substage 5: Tertiary Circular Reactions (12 to 18 months). During this stage, toddlers become more creative in eliciting responses and are better problem solvers. For example, if the first button on the talking telephone does not make it talk, they will continue to press other buttons on the phone until they find the correct one.

Substage 6: Mental Representation (18 months to 2 years). Piaget described toddlers in this stage as actually able to use thinking skills in that they retain mental images of what is not immediately in front of them. For example, the toddler will look in a toy box for a desired toy and move other toys aside that prohibit recovery of the desired toy. Toddlers can also remember and imitate observed behavior. For example, toddlers roll their toy lawn mower over the lawn, imitating their parents’ lawn mowing.

As much as Piaget’s work has been praised, it has also been questioned and criticized. Piaget constructed his theory based on his observations of his own three children. Thus, one question has been how objective he was and whether the concepts can really be generalized to all children. Also, Piaget suggested that his developmental model describes the “average” child, but he did not define or describe what he meant by average. Finally, Piaget also did not address the influence of environmental factors—such as culture, family, and significant relationships and friendships—on cognitive development.

Research findings have also called into question some aspects of Piaget’s theory. For example, Piaget described young children as being incapable of object permanence until at least 9 months of age. However, infants as young as 3½ and 4½ months of age have been observed who are already proficient at object permanence (Baillargeon, 1987). Other researchers (Munakata, McClelland, Johnson, & Siegler, 1997) have found that although infants seem aware of hidden objects at 3½ months, they fail to retrieve those objects until
about 8 months of age. These researchers suggest that cognitive skills such as object permanence may be multifaceted and gradually developed (Baillargeon, 2004). Findings like these suggest using Piaget’s model with caution. It remains, however, our most useful view of how cognition develops.

**Prelanguage Skills**

Some of the developmental milestones for language development are listed in Exhibit 3.3. Although infants communicate with their caretakers from the beginning (primarily by crying), language development truly begins around 2 months of age. The first sounds, cooing, are pleasing to most parents. By age 4 months, infants babble. Initially, these babbles are unrecognizable. Eventually, between 8 and 12 months, infants make gestures to indicate their desires. The babble sounds and gestures together, along with caretakers’ growing familiarity with the infant’s “vocabulary,” make it easier for infants to communicate their desires. For example, 12-month-old infants may point to their bottle located on the kitchen cabinet and babble “baba.” The caretaker soon learns that “baba” means “bottle.”

By the age of 18 to 24 months, the toddler can speak between 50 and 200 words. Piaget asserts that children develop language in direct correlation to their cognitive skills. Thus, most of the words spoken at this age relate to people and significant objects in the toddler’s environment. These include words such as “mama,” “dada,” “cat,” and “sissy” (sister), for example. Toddlers’ first words also include situational words such as “hot,” “no,” and “bye.” Between 20 and 26 months, toddlers begin to combine two words together, also in tandem with growing cognitive abilities. For example, children can say “all gone” as they develop an understanding of object permanence (Berk, 2005).

Even with these skills, toddlers may be difficult to understand on occasion. Cindy, the mom of 24-month-old Steven, describes collecting her son from day care. During the trip home, Steven initiated conversation with Cindy by calling out “Mama.” He began to “tell” her about something that Cindy assumes must have occurred during the day. Steven continued to babble to his mother with animation and laughs and giggles during the story. Although Cindy laughed at the appropriate moments, she was unable to understand most of what Steven was sharing with her.

The most important thing that adults can do to assist with language development is to provide opportunity for interactions. Adults can answer questions, provide information, explain plans and actions, and offer feedback about behavior. Adults can also read to infants and toddlers and play language games. The opportunity for interaction is important for deaf children as well as hearing children, but deaf children need interaction that involves hand and eye, as with sign language (Shonkoff & Phillips, 2000). Researchers have found that when talking with infants and toddlers, adults and even older children will engage in behaviors that facilitate language development; they tend to speak in a high pitch, use shorter sentences, and speak slowly (Singh, Morgan, & Best, 2002). However, there appear to be cultural differences in how adults communicate with infants and toddlers, and it is not clear how these differences affect language acquisition (Sabbagh & Baldwin, 2001).

Children who are bilingual, or multilingual, from birth seem to develop language ability at the same pace as children who are monolingual (Shonkoff & Phillips, 2000). Of course, language ability in any language is not retained unless the environment provides an opportunity for using the language.
Socioemotional Development

Infants and toddlers face vital developmental tasks in the emotional arena (some of which are listed in Exhibit 3.5), as well as in the social arena. Development during these early ages may set the stage for socioemotional development during all other developmental ages. This section addresses these tasks.

Erikson’s Theory of Psychosocial Development

Erik Erikson’s (1950) theory explains socioemotional development in terms of eight consecutive, age-defined stages of emotional development. Each stage requires the mastery of a developmental task. Mastery at each stage depends on mastery in the previous stages. If the “task facilitating factors” for a stage are absent, the individual will become stuck in that stage of development.

Each of Erikson’s stages is overviewed in Exhibit 3.6 and discussed in the chapter about the part of the life course to which it applies. The following two stages are relevant to infants and toddlers:

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional life centered on physical states. Exhibits distress, fear, and rage.</td>
<td>Newborn</td>
</tr>
<tr>
<td>Emotional life begins to be centered on relationships. Exhibits pleasure and delight.</td>
<td>3 months</td>
</tr>
<tr>
<td>Emotional life continues to be relational, but distinctions are made between those relationships, as in stranger anxiety and separation anxiety. Exhibits joy, fear, anxiety, and anger.</td>
<td>9 months</td>
</tr>
<tr>
<td>Emotional life becomes sensitive to emotional cues from other people. Exhibits a range of emotion from joy to rage.</td>
<td>End of first year</td>
</tr>
<tr>
<td>Emotional life becomes centered on regulation of emotional states.</td>
<td>Second and third year</td>
</tr>
</tbody>
</table>


1. Trust versus mistrust (ages birth to 1½). The overall task of this stage is for infants to develop a sense that their needs will be met by the outside world and that the outside world is an okay place to be. In addition, the infant develops an emotional bond with an adult, which Erikson believes becomes the foundation for being able to form intimate, loving relationships in the future. Erikson argues the need for one consistent mother figure. The most important factor facilitating growth in this stage is consistency in having physical and emotional needs met: being fed when hungry, being kept warm and dry, and being allowed undisturbed sleep. In addition, the infant has to be protected from injury, disease, and so on, and receive adequate stimulation. Infants who develop mistrust at this stage become
suspicious of the world and withdraw, react with rage, and have deep-seated feelings of dependency. These infants lack drive, hope, and motivation for continued growth. They cannot trust their environment and are unable to form intimate relationships with others. Given Ms. Velasquez’s view that the outside world is not a safe place, described at the beginning of the chapter, her young son, Henry, is at risk of developing feelings of mistrust.

2. **Autonomy versus shame and doubt** (ages 1½ to 3). A child with autonomy has a growing sense of self-awareness and begins to strive for independence and self-control. These children feel proud that they can perform tasks and exercise control over bodily functions. They relate well with close people in the environment and begin to exercise self-control in response to parental limits. To develop autonomy, children need firm limits for controlling impulses and managing anxieties, but at the same time still need the freedom to explore their environment. Exhibit 3.7 summarizes possible sources of anxiety for toddlers (Davies, 2004). Toddlers also need an environment rich with stimulating and interesting objects and with opportunities for freedom of choice. Adults must accept the child’s bodily functions as normal and good and offer praise and encouragement to enhance the child’s mastery of self-control. At the other end of the spectrum are children who doubt themselves. They fear a loss of love and are overly concerned about their parents’ approval. These children are ashamed of their abilities and develop an unhealthy kind of self-consciousness.

Erikson does not address whether tasks that should be mastered in one stage can be mastered later if the facilitating factors—such as a dependable, nurturing caregiver—are introduced. For example, we know that Sarah suffered some neglect until Chris Johnson and his parents provided a dependable, nurturing environment for her. At what point is it too late to undo psychosocial damage? Critics also question Erikson’s emphasis on the process of individualization, through which children develop a strong identity separate from that of their family. Many believe this to be a North American, Western value and therefore not applicable to collectivistic societies such as many African, Latin, and Asian societies or to collectivistic subcultures in the United States.

**Emotional Control**

Researchers have paid a lot of attention to the strategies infants develop to cope with intense emotions, both positive and negative ones. They have found that by the middle of the second year, toddlers have built a repertoire of ways to manage strong emotions. They make active efforts to avoid or disregard situations that arouse strong emotions. They engage in reassuring self-talk. And they develop substitute goals if they become thwarted in goal-directed behavior (Shonkoff & Phillips, 2000).

You may not be surprised to learn that researchers have found that one of the most important elements in how an infant learns to manage strong emotions is the assistance provided by the caregiver for emotion management (Siegel, 1999). The child’s temperament also makes a difference, as you will see in the next section.

Finally, there are cultural differences in expectations for management of emotions in infants. For example, Japanese parents try to shield their infants from the frustrations that would invite anger. In other words, some emotions are regulated by protecting the child from
### Exhibit 3.6  
**Erikson’s Stages of Psychosocial Development**

<table>
<thead>
<tr>
<th>Life Stage</th>
<th>Psychosocial Challenge</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infancy (birth to about 1 year)</td>
<td>Basic trust versus basic mistrust</td>
<td>Infants must form trusting relationships with caregivers or they will learn to distrust the world.</td>
</tr>
<tr>
<td>Toddlerhood (about 1 to 3 years)</td>
<td>Autonomy versus shame and doubt</td>
<td>Toddlers must develop self-confidence and a sense of mastery over themselves and their worlds and they use newly developed motor skills or they will develop shame and doubt about their inability to develop control.</td>
</tr>
<tr>
<td>Early childhood (3 to 5 years)</td>
<td>Initiative versus guilt</td>
<td>Young children must develop a growing capacity to plan and initiate actions or they may feel guilt about their taking initiative.</td>
</tr>
<tr>
<td>Middle childhood (6 to 11 years)</td>
<td>Industry versus inferiority</td>
<td>School-aged children must develop a sense of competence to master and complete tasks or they learn to feel inferior or incompetent.</td>
</tr>
<tr>
<td>Adolescence (11 to 20 years)</td>
<td>Identity versus role diffusion</td>
<td>Adolescents must develop a sense of who they are and where they are going in life or they become confused about their identity.</td>
</tr>
<tr>
<td>Young adulthood (21 to 40 years)</td>
<td>Intimacy versus isolation</td>
<td>Young adults must develop the capacity to commit to deep associations with others or they feel a sense of isolation.</td>
</tr>
<tr>
<td>Middle adulthood (40 to 65 years)</td>
<td>Generativity versus stagnation</td>
<td>Midlife adults must develop the capacity to transcend self-interest to guide the next generation or they feel stagnated.</td>
</tr>
<tr>
<td>Late adulthood (over 65 years)</td>
<td>Ego integrity versus despair</td>
<td>Older adults must find integrity and contentment in their final years by accepting their life as it has been or they feel a sense of despair.</td>
</tr>
</tbody>
</table>

**Source:** Based on Erikson, 1950, 1978.

### Exhibit 3.7  
**Some Possible Sources of Anxiety for Toddlers**

- Difficulty understanding what is happening
- Difficulty communicating
- Frustration over not being able to do what others can do or what they imagine others can do
- Conflicts between wanting to be independent and wanting their parents’ help
- Separation or threat of separation from caregivers
- Fears of losing parental approval and love
- Reactions to losing self-control
- Anxieties about the body

**Source:** Adapted from Davies, 2004.
situations that would arouse them (Miyake, Campos, Kagan, & Bradshaw, 1986). There are also cultural differences in how much independence infants and toddlers are expected to exercise in managing emotions. In one study comparing Anglo and Puerto Rican mothers, Harwood (1992) found that Anglo mothers expected their infants to manage their stranger anxiety and separation anxiety without clinging to the mother. The Puerto Rican mothers, on the other hand, expected their infants to rely on the mother for solace.

Temperament

Another way to look at emotional development is by evaluating temperament—the individual's innate disposition. The best-known study of temperament in infants and young children was conducted by Alexander Thomas, Stella Chess, and Herbert Birch (1968, 1970). They studied nine components of temperament: activity level, regularity of biological functions, initial reaction to any new stimulus, adaptability, intensity of reaction, level of stimulation needed to evoke a discernible response, quality of mood, distractibility, and attention span or persistence. From their observations, the researchers identified three types of temperament: easy, slow to warm up, and difficult.

For an idea of the differences in infant temperament, consider the range of reactions you might see at a baptism service. One infant might scream when passed from one person to the other and when water is placed on his or her forehead. The mother might have difficulty calming the infant for the remainder of the baptism service. At the other extreme, one infant might make cooing noises throughout the entire service and seem unbothered by the rituals. The slow-to-warm-up infant might cautiously check out the clergy administering the baptism and begin to relax by the time the ritual is completed.

Thomas and his colleagues believed that a child's temperament appears shortly after birth and is set, or remains unchanged, throughout life. Recent research indicates, however, that a stable pattern of temperament is not evident until about 4 months, when the central nervous system is further developed (Shonkoff & Phillips, 2000). Whether temperament is permanent or not is still unresolved. There is growing agreement, however, about two aspects of temperament: 1) there is some stability to a child's positive or negative reactions to environmental events, and 2) this stability of reaction leads to patterned reactions from others (Vaughn & Bost, 1999).

Thomas, Chess, and Birch cautioned that a difficult temperament does not necessarily indicate future childhood behavior problems, as one might logically assume. More significant than an infant's temperament type is the “goodness of fit” between the infant and the expectations, temperament, and needs of those in the child's environment (Thomas & Chess, 1986). In other words, how well the infant's temperament matches with that of parents, caregivers, and siblings is crucial to the infant's emotional development. For example, there appears to be a “problematic fit” between Holly Hicks and her mother. Although Mrs. Hicks is able to meet Holly's basic needs, she feels rejected and overwhelmed by Holly's “difficult” temperament. Holly seems to get irritated with Mrs. Hicks's nurturing style. Thomas and Chess suggest that regardless of a child's temperament, caregivers and others in the child's environment can learn to work with a child's temperament. Thus, helping Mrs. Hicks develop a better fit between herself and Holly will help Holly develop toward healthy functioning.

Research investigating temperament as a predictor of preschool behavior problems yielded a surprising result (Oberklaid, Sanson, Pedlow, & Prior, 1993). Investigators found
that the parent’s perception of the preschool child’s temperament had more influence on the development of behavior problems than did the child’s actual temperament. Children who were perceived by their caregivers as having a “difficult” temperament were twice as likely to develop a behavior problem during the preschool years, regardless of their empirically measured temperament type.

Studies like these call into question whether temperament is genetically determined or environmentally induced. In a study of temperament among twins and among adopted siblings, investigators found that genetics contributed more than environment to temperament development (Braungart, Plomin, DeFries, & Fulker, 1992). The twins’ temperaments were more alike than were those of the adopted siblings. The researchers concluded that environment contributes very little to temperament. However, another team of researchers (deVries & Sameroff, 1984) studied temperament among infants from three distinct East African societies and concluded that factors in the infants’ environment—such as child-rearing practices, level of social change or modernization, maternal attitudes, ecological setting, and specific early life events—have more influence on temperament development than genetics. We could infer from this study that temperament is “neutral” and then molded and shaped by parental characteristics and expectations (Oberklaid et al., 1993). As with other aspects of personality, however, perhaps children are born with a genetic predisposition to a temperament type that is then significantly influenced by environmental factors.

**Bowlby’s Theory of Attachment**

Another key component of emotional development is attachment—the ability to form emotional bonds with other people. Many child development scholars have suggested that attachment is one of the most important issues in infant development, mainly because attachment is the foundation for emotional development and a predictor of later functioning. Note that this view of attachment is similar to Erikson’s first stage of psychosocial development. This perspective is similar to the one Mrs. Hicks found on the Internet, which raised issues of concern for her.

The two most popular theories of attachment were developed by John Bowlby (1969) and Mary Ainsworth and colleagues (Ainsworth, Blehar, Waters, & Wall, 1978). Bowlby, who initially studied attachment in animals, concluded that attachment is natural, a result of the infant’s instinct for survival and consequent need to be protected. Attachment between infant and mother ensures that the infant will be adequately nurtured and protected from attack or, in the case of human infants, from a harsh environment. The infant is innately programmed to emit stimuli (smiling, clinging, etc.) to which the mother responds. This exchange between infant and mother creates a bond of attachment. The infant initiates the attachment process, but later the mother’s behavior is what strengthens the bond.

Bowlby hypothesized that attachment advances through four stages: preattachment, attachment in the making, clear-cut attachment, and goal-corrected attachment. This process begins in the first month of life, with the infant’s ability to discriminate the mother’s voice. Attachment becomes fully developed during the second year of life, when the mother and toddler develop a partnership. During this later phase of attachment, the child is able to manipulate the mother into desired outcomes, but the child also has the capacity to
understand the mother’s point of view. The mother and the child reach a mutually accept-
able compromise.

Bowlby contends that infants can demonstrate attachment behavior to others; however, attachment to the mother occurs earlier than attachment to others and is stronger and more consistent. It is thought that the earliest attachment becomes the child’s *working model* for subsequent relationships (Bowlby, 1982).

Attachment explains the child’s anxiety when the parents leave. However, children eventually learn to cope with separation. Toddlers often make use of *transitional objects*, or comfort objects, to help them cope with separations from parents and to handle other stressful situations. During such times, they may cuddle with a blanket, teddy bear, or other stuffed animal. The transitional object is seen as a symbol of the relationship with the caregiver, but toddlers also see it as having magic powers to soothe and protect them (Davies, 2004).

**Ainsworth’s Theory of Attachment**

One of the most widely used methods to investigate infant attachment, known as the strange situation procedure, was developed by Ainsworth and colleagues (Ainsworth et al., 1978). The Ainsworth group believed that the level of infant attachment to the mother could be assessed through the infant’s response to a series of “strange” episodes. Basically, the child is exposed over a period of 25 minutes to eight constructed episodes involving separation and reunion with the mother. The amount of child attachment to the mother is measured by how the child responds to the mother following the “distressing” separation.

Ainsworth and her colleagues identified three types of attachment:

1. **Secure attachment.** The child uses the mother as a home base and feels comfortable leaving this base to explore the playroom. The child returns to the mother every so often to ensure that she is still present. When the mother leaves the room (act of separation), the securely attached child will cry and seek comfort from the mother when she returns. But this child is easily reassured and soothed by the mother’s return.

2. **Anxious attachment.** The child is reluctant to explore the playroom and clings to the mother. When the mother leaves the room, the child cries for a long time. When the mother returns, this child seeks solace from the mother but continues to cry and may swat at or pull away from the mother. Ainsworth and colleagues described these infants as somewhat insecure and doubted that their mothers would ever be able to provide the security and safety they need.

3. **Avoidant attachment.** Some infants seem indifferent to the presence of their mother. Whether the mother is present or absent from the room, these children’s responses are the same.

More recent scholars have added a fourth response, known as the *insecure disorganized/disoriented* response (Belsky, Campbell, Cohn, & Moore, 1996; Main & Hesse, 1990). These children display contradictory behavior: they attempt physical closeness, but retreat with acts of avoidance. These infants typically have mothers who either have a history of abusive
behavior or continue to struggle with a traumatic experience in their own lives. As a result, the infants become confused in the “strange” situation. They fear the unknown figure and seek solace from the mother, but retreat because they are also fearful of the mother. Some authors have suggested that the behavior associated with the disorganized style is actually an adaptive response to harsh caregiving (Stovall & Dozier, 1998).

According to Ainsworth’s attachment theory, children whose mothers are consistently present and responsive to their needs and whose mothers exhibit a warm, caring relationship develop an appropriate attachment. Findings from studies indicate that this is true, even when there are negative family issues such as alcoholism by the father (Edwards, Eiden, & Leonard, 2006). However, the implication is that only mother-infant attachment exists or is relevant to healthy infant development. This assumption probably seemed unquestionable when these theories were constructed. Today, however, many fathers have prominent, equal, and/or primary responsibilities in childrearing and childcare, sometimes by choice, and other times because of necessity. Sarah Johnson’s dad for example became the primary caretaker for Sarah out of necessity. The gender of the parent is irrelevant in the development of secure infant attachment. Rather, it is the behavior of the primary caregiver, regardless of whether it is mother or father, which has the most influence on infant attachment (Geiger, 1996). When fathers who are the primary caregivers are able to provide infants with the warmth and affection they need, the infants develop secure attachments to their fathers. In fact, under stress, the fathers become a greater source of comfort to their infants than the mothers who are the secondary caregivers (Geiger, 1996). Perhaps the best scenario is when infants develop secure attachments to both parents. In one study, infants with secure attachments to both parents demonstrated less behavioral difficulties as toddlers, even less problems than toddlers with only secure mother infant attachment (Volling, Blandon, & Kolak, 2006).

In addition to a more prominent role by fathers over the past 20 to 30 years, more women have entered the workforce, and many more children experience alternative forms of childcare, including day care. The effect day care has on the development of attachment in young children continues to be a hotly debated topic. Some argue that day care has a negative effect on infant attachment and increases the risk of the infant’s developing insecure and avoidant forms of attachment (see, e.g., Belsky, 1987; Belsky & Braungart, 1991). The risks are especially high if the infant attends day care during the first year of life. Others argue that day care does not have a negative effect on infant and early childhood attachment (Griffith, 1996; Shonkoff & Phillips, 2000). In fact, in one study, day care was found to mitigate the adverse effects of insecure mother-infant attachment (Spieker, Nelson, & Petras, 2003).

The question of how day care attendance affects attachment is probably not as simplistic as either side contends. Many factors appear to be associated with the development of attachment for children in day care. The overriding factor is the quality of the relationship between the infant and parents, regardless of the child’s care arrangements. For example, mothers who have a positive attitude toward their infant, are emotionally available to their infant, and encourage age-appropriate levels of independence produce infants with secure attachment (Clarke-Stewart, 1988; Shonkoff & Phillips, 2000). Also, infants whose parents have a stable and loving marriage and whose father is significantly involved in their nurturing and care tend to develop secure attachment, even if they spend a significant portion of the day in child care (Schachere, 1990).
Recently, researchers have begun to study attachment among children in foster care. Over a half million children are in foster care in the United States (Children’s Defense Fund, 2001). Most of these children come into foster care without secure attachments. Once in foster care, many children are subjected to frequent changes in their foster homes (Smith, Stormshak, Chamberlain, & Whaley, 2001). Problems with attachment may contribute to foster home disruptions, but foster home disruptions also contribute to attachment problems. Others conclude that institutional care can also have the same devastating effects on attachment (Johnson, Browne, & Hamilton-Giachritsis, 2006). Regardless, the child welfare system has paid too little attention to issues of attachment.

Let’s look at one other issue concerning attachment. The manner in which infant attachment is measured raises some concerns. Most studies of attachment have used the Ainsworth group’s strange situation method. However, this measure may not yield valid results with some groups or under certain conditions. For example, the avoidant pattern of attachment some investigators have noted among children in day care may not indicate lack of attachment, as some have concluded (Clarke-Stewart, 1989). These children may be securely attached but seem indifferent to the exit and return of the mother simply because they have become accustomed to routine separations and reunions with their mother.

The appropriateness of using the strange situation method with certain ethnic groups has also been questioned. Researchers evaluating attachment in Puerto Rican and Dominican infants (Fracasso, Busch-Rossnagel, & Fisher, 1994) have concluded that the pattern of attachment in these ethnic groups is different from that identified in studies of European American infants and is thus often mislabeled. For instance, multiple caregiving is traditional in the African American community (Jackson, 1993); many extended-family members (both blood and nonblood relations) participate in the rearing of children—for a number of reasons, including accommodation of parents’ unconventional work schedules. This multiple caregiving arrangement encourages African American infants to befriend “strangers” introduced to them by their mothers. As a result, African American children often are more independent and do not experience the same level of anxiety that European American children experience when left by their mother. The “apathy” of African American children toward the mother may not be apathy at all, but rather an indication that they have adapted to the multiple caregiver arrangement. Interestingly, this tradition of shared child rearing echoes the African proverb “It takes a village to raise a child,” which has become a popular adage in the United States. Also, it should be noted that the extended kinship network has been found to be a strength of African American families (Hill, 1972; Logan, Freeman, & McRoy, 1990).

At the other end of the continuum, Asian mothers traditionally have rarely left their infants in the care of others. One researcher found that Japanese mothers leave their babies in the care of others an average of 2.2 times in a given month, and only in the care of an immediate family relative such as the father or grandmother. They also keep their infants in close proximity; they often sleep in the same room and infants are carried on the mother’s back (Takahashi, 1990). As a result, Japanese infants tend to be highly anxious when their mothers leave the room. The response to the mother leaving is so intense that these infants are not easily comforted when the mother returns. Some might label the response by these infants as a sign of insecure attachment, although the response is consistent with the
environment they have experienced. Quite likely, the infants in fact have a secure and appropriate attachment to their mother (Takahashi, 1990).

**Attachment and Brain Development**

Attachment directly affects brain development (Gerhardt, 2004; Zigler et al., 2002; Perry, 2002). The suggestion is that the brain is physically affected by the presence or absence of attachment. Gerhardt concludes that without emotional bonding with an adult, the orbitofrontal cortex in the brain of infants (the part of the brain that allows social relationships to develop) cannot develop well. This process has been called the social brain. Supporters of this perspective cite several studies to support these conclusions, including a recent investigation of infants reared in orphanages in Romania conducted by Chugani et al. (2001). The infants had little contact with an adult, were left in their cots for most of the day, fed with propped-up bottles, and were never smiled at or hugged. Research with these infants found that their brain development was severely impaired.

One question of concern is whether these deficiencies in brain development are permanent. Some suggest that the brain impairments can be reversed if changes in care and attachment occur early enough (Zigler et al., 2002). They highlight the strides in brain development made by the Romanian orphans who were adopted into caring homes before they were 6 months of age. Perhaps Sarah Johnson’s improvement was due to early intervention and moving her quickly to live with her dad. Others suggest that the brain impairments caused by lack of attachment with a primary caregiver are permanent (Perry, 2002). Regardless, the implication is that future brain growth is seriously jeopardized if brain development is not adequately nurtured in the first two to three years. Gerhardt concludes that the best advice we can offer parents of newborns is to forget about holding flashcards in front of the baby, but, instead, hold and cuddle the infants and simply enjoy them.

**The Role of Play**

Historically, play was thought to be insignificant to development, especially for infants and toddlers. However, we now know that play allows infants and toddlers to enhance motor, cognitive, emotional, and social development.

Because of their differences in development in all areas, infants and toddlers play in different ways. Exhibit 3.8 describes four types of infant play and three types of play observed in very young children. These later types of play begin in toddlerhood, and develop in union with cognitive and motor development. For example, young toddlers will play with a mound of clay by hitting and perhaps squishing it. More developed toddlers will mold the clay into a ball, and older toddlers will try to roll or throw the molded ball.

One zealous mother describes joining the “Toy of the Month Club” in which she received developmental toys through the mail each month for the first two years of her child’s life. This mother wanted to be sure that her child had every opportunity to advance in terms of motor and cognitive skills. Although this mother’s efforts are to be applauded, she admits that these toys were very costly and that perhaps she could have achieved the same outcome with other less costly objects. For example, there is no evidence that a store-bought infant mobile is any more effective than a homemade paper one hung on a clothes hanger. The objective is to provide stimulation and opportunities for play.
Another important aspect of play is parent/child interaction. Parent/infant play may increase the likelihood of secure attachment between the parent and child (Call, 1995; Davies, 2004; Scarlett, Naudeau, Salonius-Pasternak, Ponte, 2005). The act of play at least provides the opportunity for infants and parents to feel good about themselves by enjoying each other and by being enjoyed (Call, 1995; McCluskey & Duerden, 1993). Even before infants can speak or understand language spoken to them, play provides a mechanism of communication between the parent and infants. Infants receive messages about themselves through play, which promotes their sense of self (McCluskey & Duerden, 1993; Scarlett et al., 2005).

Play also is a vehicle for developing peer relations. A few decades ago, it was thought that babies really aren’t interested in each other and cannot form relationships with each other. Recent research challenges this view (Shonkoff & Phillips, 2000). The peer group becomes more important at earlier ages as family size decreases and siblings are no longer available for daily social interaction. Researchers have found that very young infants get excited by the sight of other infants; by 6 to 9 months, infants appear to try to get the attention of other infants; and by 9 to 12 months infants imitate each other. Although toddlers are capable of establishing relationships, their social play is a struggle, and a toddler play session is quite a fragile experience. Toddlers need help in structuring their play with each other. And yet, researchers have found that groups of toddlers in preschool settings develop play routines that they return to again and again over periods of months (Corsaro, 2005). These toddler play routines are primarily nonverbal, with a set of ritualized actions. For example, Corsaro notes a play routine in one Italian preschool in which a group of toddlers would rearrange the chairs in the room and work together to move them around in patterns. They returned to this routine fairly regularly over the course of a year, modifying it slightly over time. Peer relations are being built by “doing things together.”

### Exhibit 3.8 Types of Play in Infancy and Toddlerhood

<table>
<thead>
<tr>
<th>Types of Infant Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocal play</td>
</tr>
<tr>
<td>Interactive play</td>
</tr>
<tr>
<td>Exploratory play with objects</td>
</tr>
<tr>
<td>Baby games</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Types of Toddler Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional play</td>
</tr>
<tr>
<td>Constructive play</td>
</tr>
<tr>
<td>Make-believe play</td>
</tr>
</tbody>
</table>

Sources: Types of Infant Play based on Davies, 2004; Types of Toddler Play based on Rubin, Fein, & Vandenberg, 1983.
Developmental Disruptions

Providing interventions to infants and toddlers with disabilities is mandated by the Developmental Disabilities Assistance and Bill of Rights Act. However, accurately assessing developmental delays in young children is difficult (Zipper & Simeonsson, 2004). One reason is that although we have loose guidelines for healthy development in infants and toddlers, development varies by individual child. Young children walk, master potty training, and develop language skills on different time tables. It is therefore difficult to assess whether a particular child has a case of delayed development—and if so, which faculties are delayed. Premature infants like Holly Hicks, for example, often need time to catch up in terms of physical, cognitive, and emotional development. At what point does Holly’s social worker decide that she is not developing fast enough, and label her developmentally delayed?

The other reason that accurate assessment of developmental difficulties in infants and toddlers is hard is that although many physical and cognitive disabilities have been found to be genetic and others to be associated with environmental factors, the cause of most disabilities is unknown. For example, mental retardation has 350 known causes, yet the cause of most identified cases of mental retardation is unknown (Zipper & Simeonsson, 1997). Anticipating what the risk factors might be for a particular child and how they might influence developmental delays is therefore difficult. Assessment should be multidimensional, including the child, the family, and the broader environment (Zipper & Simeonsson, 2004).

Regardless, early intervention services for infants and toddlers who truly are delayed appear to be effective, especially in enhancing cognitive development (Shonkoff, Hauser-Cram, Krauss, & Upshur, 1992). The earlier the intervention begins, the better. Parent involvement is also crucial to the child’s progress (Simeonsson, Edmondson, Smith, Carnahan, & Bucy, 1995).

Child Care Arrangements in Infancy and Toddlerhood

Human infants start life in a remarkably dependent state, in need of constant care and protection. On their own, they would die. Toddlers are full of life and are making great strides in development in all areas, but they are also “not ready to set out for life alone in the big city” (Newman & Newman, 2006, p. 182). Societal health is dependent on finding good solutions to the question, who will care for infants and toddlers?

With large numbers of mothers of infants and toddlers in the paid work force, and not at home, this question becomes a challenging one. The United States seems to be responding to this challenge more reluctantly than other highly industrialized countries are. This difference becomes clear in comparative analysis of two solutions for early child care: family leave and paid child care.

Family Leave

Because of changes in the economic institution in the United States between 1975 and 1999, the proportion of infants with mothers in paid employment increased from 24% to 54% (Shonkoff & Phillips, 2000). A similar trend is occurring around the world.

In response, most industrialized countries have instituted social policies that provide for job-protected leaves for parents to allow them to take off from
work to care for their young children. Sweden was the first country to develop such a policy in 1974. The Swedish policy guaranteed paid leave.

By the early 1990s, the United States was the only industrialized country without a family leave policy (Kamerman, 1996). But in 1993, the U.S. Congress passed the Family and Medical Leave Act (FMLA) of 1993 (P.L. 103-3). FMLA requires businesses with 50 or more employees to provide up to 12 weeks of unpaid, job-protected leave during a 12-month period for workers to manage childbirth, adoption, or personal or family illness. Eligible workers are entitled to continued health insurance coverage during the leave period, if such coverage is a part of their compensation package.

Exhibit 3.9 highlights the family leave policies in selected countries. In 2002, the United States and Australia were the only affluent countries of the world that did not offer some paid parental leave at the time of birth and adoption. Australia does, however, provide families with a universal, flat rate maternity grant of $4,000 for each new child to assist with the costs of birth or adoption. The grant is scheduled to increase to $5,000 in July 2008 (Australian Government: Department of Family and Community Services: Office for Women, 2006). European countries also provide birth or maternity grants and family allowances. This is an area for social work advocacy in the United States.

Paid Child Care

Historically in the United States, mothers were expected to provide full-time care for infants and toddlers at home. If mothers were not available, it was expected that children would be cared for by domestic help or a close relative but still in their home setting (Kamerman & Kahn, 1995). Even in the 1960s, with the development of Head Start programs, the focus was

<table>
<thead>
<tr>
<th>Country</th>
<th>Duration of Leave</th>
<th>Percentage of Wage Replaced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>3 months</td>
<td>100%</td>
</tr>
<tr>
<td>Australia</td>
<td>1 year</td>
<td>Unpaid</td>
</tr>
<tr>
<td>Belgium</td>
<td>15 weeks</td>
<td>75% to 80%</td>
</tr>
<tr>
<td>Canada</td>
<td>1 year</td>
<td>55%</td>
</tr>
<tr>
<td>Denmark</td>
<td>1 year</td>
<td>60%</td>
</tr>
<tr>
<td>Greece</td>
<td>2 weeks paternity</td>
<td>60%</td>
</tr>
<tr>
<td>Italy</td>
<td>16 weeks</td>
<td>50%</td>
</tr>
<tr>
<td>Mexico</td>
<td>5 months</td>
<td>80%</td>
</tr>
<tr>
<td>Norway</td>
<td>12 weeks</td>
<td>100%</td>
</tr>
<tr>
<td>Peru</td>
<td>52 weeks (or 42 weeks at 100%)</td>
<td>80%</td>
</tr>
<tr>
<td>Sweden</td>
<td>First 3 months</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Subsequent 1 year</td>
<td>80%</td>
</tr>
<tr>
<td>United States</td>
<td>12 weeks</td>
<td>Unpaid</td>
</tr>
</tbody>
</table>

Source: Based on Clearinghouse on International Developments in Child, Youth and Family Policies at Columbia University, 2002.
Exhibit 3.10: Identified Factors of Quality Day Care

- **Staff/child ratio**: 1:3 for infants, 1:4 for toddlers, and 1:8 for preschoolers
- **Group size**: no larger than 6 for infant, 8 for toddlers, and 16 for preschoolers
- **Staff training**: on child development and age-appropriate child care


**Infants and Toddlers in the Multigenerational Family**

Maria, a new mom, describes the first visit her mother and father made to her home after the birth of Maria’s new infant. “Mom and Dad walked right past me as if I was not there, even though we had not seen each other for six months. I quickly realized that my status as their ‘princess’ was now replaced with a new little princess. During their visit, my husband and I had to fight to see our own child. When she cried, they immediately ran to her. And my mother criticized everything I did—she didn’t like the brand of diapers I used, she thought the color..."
of the room was too dreary for an infant—and she even scolded my husband at one point for waking the baby when he went to check on her. I appreciated their visit, but I must admit that I was glad when it was time for them to leave.” Maria’s description is not unique. The involvement of grandparents and other extended family members in the care of infants and toddlers may be experienced either as a great source of support or as interference and intrusion (and sometimes as a little of each). And, of course, cultures of the world have different norms about who is involved, and in what ways, in the care of infants and toddlers.

Yet, the specific roles of grandparents and other extended family members is rarely discussed within the family, which is why conflicts often occur (Hines, Preto, McGoldrick, Almeida, & Weltman, 2005). When these roles are clearly articulated and agreed upon, extended family members can provide support that enhances infant and toddler development (Hines et al., 2005). Family involvement as a form of social support is further discussed as a “protective factor” later in this chapter.

The birth of a child, especially of a first child, brings about a major transition not only for parents but also for the entire kin network. Partners become parents; sons and daughters become fathers and mothers; fathers and mothers become grandfathers and grandmothers; and brothers and sisters become aunts and uncles. The social status of the extended family serves as the basis of the social status of the child, and the values and beliefs of the extended family will shape the way they care for and socialize the child (Carter & McGoldrick, 2005b; Newman & Newman, 2006). In addition, many children’s names and child-rearing rituals, decisions, and behaviors are passed from past generations to the next.

To illustrate this point, there is an old joke about a mother who prepared a roast beef for most Sunday family dinners. She would always cut the roast in half and place it in two pans before cooking it in the oven. Observing this behavior, her young daughter asked her why she cut the roast in half. After some thought she told her daughter that she did not know for sure; she remembered that her mother had always cut her roast in half. Later the mother asked her mother why she had cut her roast in half before cooking it. The senior mother explained that she did not have a pan large enough for the size roast she needed to feed her family. Thus, she would cut the roast in half in order to fit it into the two pans that she did own.

Similar behavior affects decisions regarding infants and toddlers. One mother reports giving her infant daughter herb tea in addition to an ointment provided by her physician for a skin rash. It seems that this skin rash was common among infant girls in each generation in this family. A specific herb tea was traditionally used to treat the rash. This mother confesses that she did not tell her mother or grandmother that she used the ointment prescribed by her doctor. It is interesting for us to note that although the mother did not have complete faith in the tea, she also did not have complete faith in the ointment. The mother states that she is not sure which one actually cured the rash. Violation of family and cultural rituals and norms can be a source of conflict between new parents and other family members (Hines et al., 1999). For example, differences of opinion about baptism, male circumcision, and even child care arrangements can create family disharmony. One decision that often involves the multigenerational family is the decision whether to breastfeed or bottle feed the infant.

**The Breastfeeding Versus Bottle Feeding Decision**

Throughout history, most infants have been breastfed. However, alternatives to breastfeeding by the mother have always existed, sometimes in the form of a wet nurse (a woman employed to breastfeed someone else’s infant) or in the form of animal milks. Following
World War II, breastfeeding ceased to be the primary nutritional source for infants because of the promotion of manufactured formula in industrialized and nonindustrialized countries. Since the 1980s, cultural attitudes have shifted again in favor of breastfeeding. However, in the United States, only 39% of infants are breastfed at 6 months, 40% less than the Healthy People 2010 goal (Centers for Disease Control and Prevention, 2006b). Employer support, including on-site day care centers, is needed to expand breastfeeding among working mothers, especially for women at risk of discontinuing breastfeeding early (Pascoe, Pletta, Beasley, & Schellpfefler, 2002). It is important to note that in many impoverished countries, it is hazardous to use formula because of the lack of access to a safe water supply for mixing with the formula.

In European American and Mexican American families, the mother often seeks the opinion of the baby’s father and maternal and paternal grandparents, whereas in African American families, the maternal grandmother and peers tend to be most influential in the decision to breastfeed (Baranowski, 1983). Korean mothers-in-law care for the new mother and are a powerful influence in choices about breastfeeding. In Saudi Arabia, a woman may breastfeed her infant openly and receive no notice, although otherwise she is fully veiled. In France, topless swimming is culturally acceptable, but breastfeeding in public is not (Riordan & Auerbach, 1999).

Most women decide to nurse primarily for infant health benefits. One benefit is increased immunity—which begins in the third trimester of pregnancy—to viruses such as mumps, chicken pox, and influenza (Jackson & Nazar, 2006). Breastfeeding has also been demonstrated to decrease the risk of obesity during childhood and adolescence, especially if infants are exclusively breastfed for six months (Weyermann, Beermann, Brenner, & Rothenbacher, 2006). Contraindications to breastfeeding are few, but they include maternal medical conditions such as untreated tuberculosis, leukemia, breast cancer diagnosed during lactation, drug abuse, and sexually transmitted diseases (Dickason, Silverman, & Kaplan, 1998). Mothers who are positive for human immunodeficiency virus (HIV) are often advised to avoid breastfeeding because breastfeeding is a risk factor for mother-to-infant transmission (Mbori-Ngacha et al., 2001). However, in poor countries the contaminated water supply may pose more risk than breastfeeding (Piwoz, Ross, & Humphrey, 2004).

**Postpartum Depression**

Family dynamics are often altered when mothers are depressed following childbirth. There is evidence that, around the world, between 10% and 15% of mothers will have postpartum depression in the first year of the infant’s life (Posmontier & Horowitz, 2004; Wisner, Chambers, & Sit, 2006). Although social factors no doubt contribute to postpartum depression, it is generally accepted that the precipitous hormonal changes at birth, to which some women seem especially sensitive, play a large role. Postpartum depression often goes undiagnosed and untreated across cultural groups (Dennis & Chung-Lee, 2006), but it is more likely to receive attention in societies that have regular postpartum visits from midwives or nurses. For example, in the United Kingdom, new parents receive seven visits from midwives in the first two weeks postpartum (Posmontier & Horowitz, 2004). Postpartum depression can be very disruptive to the early mother-infant relationship and, as discussed below, increases risk of impaired cognitive, emotional, and motor development (Wisner et al., 2006). Both social support and pharmacological interventions have been found to be helpful (Sword, Watt, & Krueger, 2006). Different cultures have different expectations for
maternal adaptation, and it is important for health providers to recognize these cultural influences (Posmontier & Horowitz, 2004).

There is very little research on psychosocial and mental health issues for new fathers, but the Australian First Time Fathers Study has attempted to address this gap in knowledge (Condon, 2006). This study finds no evidence of male postnatal depression, but it does find that male partners of women with postpartum depression are at risk of depression, anxiety, and abusing alcohol. At first, most men are confused by their wives’ depression, but supportive. If the depression lasts for months, which it often does, support is usually gradually withdrawn. Men report that they find their wives’ irritability and lack of physical affection more troubling than the sadness and tearfulness. This study also found that male partners and other family members of depressed mothers often take on more and more of the care of the infant over time, which reinforces the mother’s sense of incompetence. Communication breakdowns are very common in these situations.

**Risks to Healthy Infant and Toddler Development**

Unfortunately, not all infants and toddlers get the start they need in life. Millions of infants and toddlers around the world are impoverished, abandoned, neglected, and endangered. Collectively, the adults of the world have not ensured that every child has the opportunity for a good start in life. You have probably already surmised what some of the environmental factors are that inhibit healthy growth and development in infants and toddlers. This section addresses a few of those factors that social workers are especially likely to encounter: poverty, inadequate caregiving, and child abuse.

**Poverty**

When a family is impoverished, the youngest are the most vulnerable, and, indeed, children birth to age 3 have the highest rates of impoverishment around the world (UNICEF, 2005). Bellamy (2004) reports that one billion children across the world live in poverty, representing one in two children. Although children living in the poorest countries are much more likely than children living in wealthy countries to be poor (UNICEF, 2005), the proportion of children living in poverty in 17 of the 24 wealthiest nations has been rising (UNICEF Innocenti Research Centre, 2005). Using a relative measure of poverty as income below 50% of the national median income, the UNICEF researchers found that the percent of children living in poverty in 26 industrialized countries ranged from 2.4% in Denmark to 27.7% in Mexico. The United States had the second highest rate, 21.9%. All of the Scandanavian countries had child poverty rates less than 5%. Most European countries had rates between 5% and 10%.

In the United States, the National Center for Children in Poverty (NCCP) (2006a) estimates that families need an income about two times the U.S. federal poverty level to meet basic needs, and they refer to families below this level as low income. NCCP reports that of the 12 million infants and toddlers in the United States, 5.2 million (43%) live in low-income families, and 2.6 million (21%) live in families below the poverty level. There are racial and ethnic differences in the rates: 63% of Latino infants and toddlers live in low-income families, compared to 66% of black infants and toddlers, 26% of Asian infant and toddlers,
and 30% of white infants and toddlers. Infants and toddlers with immigrant parents are more likely than infants and toddlers with native-born parents to live in low-income families, 61% compared to 40%. Half (51%) of infants and toddlers living in low-income families have at least one parent who works full-time, year-round.

Although some young children who live in poverty flourish, poverty presents considerable risks to children’s growth and development. (That risk continues into preschool and middle childhood, as Chapters 4 and 5 explain.) Children living in poverty often suffer the consequences of poor nutrition and inadequate health care. Many of these children do not receive proper immunizations, and many minor illnesses go untreated, increasing the potential for serious health problems. This phenomenon is particularly disturbing because many of these minor illnesses are easily treated. Most childhood ear infections, for example, are easily treated with antibiotics; left untreated, they can result in hearing loss.

In addition to inadequate health care and nutrition, children living in poverty often experience overcrowded living conditions. Overcrowding restricts opportunities for play, and thus, because most learning and development in young children takes place in the context of play, restricts healthy development. A study of development among 12-month-old Haitian American children found that the poorer children experienced more overcrowded conditions than those not living in poverty and consequently had less play time, fewer toys, a smaller number of safe areas to play, and less private time with parents (Widmayer, Peterson, & Larner, 1990). The living conditions of the children who were poor were associated with delayed motor development and lower cognitive functioning.

Children are affected not only by the direct consequences of poverty but also by indirect factors such as family stress, parental depression, and inadequate or nonsupportive parenting (UNICEF, 2005). Irma Velasquez’s depression and anxiety will affect her relationship with Henry. Poor children are also more likely to be exposed to environmental toxins (Song & Lu, 2002).

Most disturbing is the link between poverty and infant mortality—the death of a child before his or her first birthday. In general, infant mortality rates are the highest in the poorest countries (United Nations Development Program, 2005). Infant mortality rates in the United States are high compared to other industrialized nations (UNICEF, 2005), but Malaysia, a country with one-quarter the average income of the United States, has achieved the same infant mortality rate as the United States (United Nations Development Program, 2005). Within the United States, mortality rates for infants are higher among the poor, and the rate among African Americans is twice that of European Americans (United Nations Development Program, 2005). As discussed in Chapter 2, low birth weight (LBW) as a result of inadequate prenatal care is the primary factor that contributes to the high infant mortality rate (United Nations Development Program, 2005).

Interestingly, the infant mortality rate for Hispanic women is lower than that of European American women (Hessol & Fuentes-Afflick, 2005), even though inadequate prenatal care is prominent among Hispanic women. This fact suggests that differences in prenatal care explain only part of the disparity in infant mortality rates. The mother’s diet and social support network have been suggested as other factors that may affect birth weight and infant mortality rates (Gonzalez-Quintero et al., 2006; McGlade, Saha, & Dahlstrom, 2004). One comparative study found lower rates of alcohol and tobacco use among Hispanic women than among women of other racial/ethnic groups and the presence of stronger family, cultural, and social ties (McGlade et al., 2004). These findings suggest that social support may offset the consequences of inadequate prenatal care.
Inadequate Caregiving

The most pervasive response to inadequate caregiving is nonorganic failure to thrive (NOFTT). This diagnosis is used to describe infants, usually between ages 3 to 12 months, who show poor development, primarily in terms of weight gain. These infants weigh less than 80% of the ideal weight for their age. The “nonorganic” feature refers to the lack of medical causes for the poor development, and is thought to be a consequence of environmental neglect (lack of food) and stimulus deprivation (Bassali & Benjamin, 2002). Overall, NOFTT is a consequence of the infant’s basic needs going unmet, primarily the needs for feeding and nurturing.

A review of the literature identified several parental factors that appear to increase the likelihood of the development of NOFTT (Bassali & Benjamin, 2002; Marino, Weinman, & Soudelier, 2001). These include maternal depression, maternal malnutrition during pregnancy, marital problems between parents, and mental illness and/or substance abuse in the primary caretaker.

Parental mental illness and depression are associated with other problems among infants and toddlers as well. For example, infants of depressed mothers demonstrate less positive expressions of mood and personality and are less attentive in play (Gomez, 2001). Overall, they demonstrate less joy, even when they were securely attached to the mother. One analysis of the literature on parental mental illness and infant development concluded the following (Seifer & Dickstein, 2000):

- Parental mental illness increases the likelihood of mental health problems among their children.
- Mothers who are depressed are more negative in interaction with their infants.
- Similarly, infants with depressed mothers are more negative in their exchange with their mothers.
- There is an association between parental mental illness and insecure attachment between parents and infants.
- Depressed mothers view their infant’s behavior as more negative than nondepressed mothers.

Child Abuse

Almost all parents in the United States use some type of physical punishment, and hitting children usually begins in infancy (McGoldrick, Broken Nose, & Potenza, 1999). Apparently, many parents are simply not aware of how dangerous it can be to use physical punishment with such young children. Infants and toddlers who are abused demonstrate delayed cognitive and language development (Veltman & Browne, 2001). As abuse and neglect continue, the infant’s cognitive skills continue to decline and “reach levels of ‘intellectual disability’” (Strathearn, Gary, & O’Callaghan, 2001). Interestingly, these infants also have smaller than average head sizes. Also, according to reports from the U.S. Department of Health and Human Services (1995), most children who die from child abuse or neglect are under age 5, and the majority of these children are less than 1 year of age.

Several factors are thought to contribute to the abuse of infants and toddlers. Consistently, poverty is reported as a factor that contributes to abuse and neglect (Lee &
Factors that interact with poverty and increase the likelihood of abuse are young motherhood and single parenthood.

An association also has been found between infant temperament and abuse (Thomlison, 2004). Infants who have “difficult” temperament are more likely to be abused and neglected. Others suggest that the combination of difficult temperament and environmental stress interact (Thomlison, 2004). Similarly, infants and toddlers with mental, physical, or behavioral abnormalities are also at a higher risk for abuse (Guterman & Embry, 2004).

Parental characteristics such as lack of education, poor self-esteem, lack of family support, and parental depression also contribute to child abuse and neglect (Coohey, 1998; Levine & Sallee, 1999; Thomlison, 2004). Of course, parents who abuse their children were often abused themselves as children (Zuravin & Di Blasio, 1996).

The number of infants removed from their home due to parental substance abuse has increased (Chasnoff, 1998), and thus the relationship between substance abuse and child abuse has become a focus of research. The abuse of alcohol and other substances is reported to contribute to child abuse (Sun, Shillington, Hohman, & Jones, 2001). Some suggest that parental substance abuse is present in at least half of all families in Child Protective Service caseloads (Murphy et al., 1991); others predict that this number may be as high as 80% (Barth, 1994). Many advocate for substance abuse treatment programs that include mothers and their infants and toddlers (Clark, 2001).

Regardless of cause, contrary to what most of us believe, most abusive parents feel terrible afterward and express feelings of guilt and remorse (Kempe & Kempe, 1976).

### Protective Factors in Infancy and Toddlerhood

Many young children experience healthy growth and development despite the presence of risk factors. They are said to have resilience. Several factors have been identified as mediating between the risks children experience and their growth and development (Fraser, Kirby, & Smokowski, 2004; Werner, 2000). These factors are “protective” in the sense that they shield the child from the consequences of potential hazards (Fraser et al., 2004). Following are some protective factors that help diminish the potential risks to infants and toddlers.

#### Education

Research indicates that the education of the mother directly affects the outcome for infants and toddlers. This effect was found even in the devastating poverty that exists in Nicaragua (Pena & Wall, 2000). The infant mortality rate is predictably high in this country. However, investigators found that the higher the mother’s level of formal education, the lower the infant mortality rate. Investigators hypothesize that mothers with higher levels of formal education provide better quality of care to their infants by feeding them more conscientiously, using available health care, keeping the household cleaner, and generally satisfying the overall needs of the infant. These mothers simply possessed better coping skills.

Similar results were found in a study of mothers and infants with two strikes against them—they are living in poverty and the infants were born premature (Bradley et al., 1994). Infants whose mothers had higher intellectual abilities demonstrated higher levels of
cognitive and social development and were more likely to be in the normal range of physical development.

Social Support

Social support is often found in informal networks, such as friends and extended family members, or in formal support systems, such as the church, community agencies, day care centers, social workers, and other professions. The availability of social support seems to buffer many risk factors, such as stress experienced by parents (Werner & Smith, 2001). For example, Mrs. Hicks could truly benefit from having the opportunity to take a break from the stresses of caring for Holly. Both formal and informal social support can fill this gap for her. Even child abuse is reduced in the presence of positive social support networks (Coohey, 1996).

Extended family members often serve as alternative caregivers when parents cannot provide care because of physical or mental illness or job demands. Reliance on an extended family is particularly important in some cultural and socioeconomic groups. Sarah’s dad, Chris Johnson, probably would not have been able to care for her without the support of his family. And, it is through the support of his family that he has been able to continue his education.

Easy Temperament

Infants with a positive temperament are less likely to be affected by risk factors (Fraser et al., 2004). The association between easy temperament and “protection” is both direct and indirect. Infants with a positive temperament may simply perceive their world more positively. Infants with a positive temperament may also induce more constructive and affirming responses from those in their environment.

IMPLICATIONS FOR SOCIAL WORK PRACTICE

In summary, knowledge about infants and toddlers has several implications for social work practice:

◆ Become well acquainted with theories and empirical research about growth and development among infants and toddlers.
◆ Assess infants and toddlers in the context of their environment, culture included.
◆ Promote continued use of formal and informal social support networks for parents with infants and toddlers.
◆ Continue to promote the elimination of poverty and the advancement of social justice.
◆ Advocate for compulsory health insurance and quality health care.
◆ Advocate for more affordable, quality child care.
◆ Collaborate with news media and other organizations to educate the public about the impact of poverty and inequality on early child development.
◆ Learn intervention methods to prevent and reduce substance abuse.
◆ Help parents understand the potential effects of inadequate caregiving on their infants, including the effects on brain development.
◆ Provide support and appropriate intervention to parents to facilitate effective caregiving for infants and toddlers.
Active Learning

1. Spend some time at a mall or other public place where parents and infants frequent. List behaviors that you observe that indicate attachment between the infant and caretaker. Note any evidence you observe that may indicate a lack of attachment.

2. Ask to tour a day care facility. Describe the things you observe that may have a positive influence on cognitive development for the infants and toddlers who are placed there. List those things that you think are missing from that setting that are needed to create a more stimulating environment.

3. Social support is considered to be a protective factor for individuals throughout the life course. List the forms of social support that are available to Marilyn Hicks, Chris Johnson, and Irma Velasquez. How do they help them with their parenting? In what ways could they be more helpful? How do they add to the level of stress?

WEB RESOURCES

The Jean Piaget Society
www.piaget.org/index.html

Site presented by The Jean Piaget Society, an international interdisciplinary society of scholars, teachers, and researchers, contains information on the society, a student page, a brief biography of Piaget, and Internet links.

National Center for Children in Poverty (NCCP)
www.nccp.org

Site presented by the NCC of the Mailman School of Public Health of Columbia University contains media resources, child poverty facts, as well as information on child care and early education, family support, and welfare reform.

Zero to Three
www.zerotothree.org

Site presented by Zero to Three: National Center for Infants, Toddlers & Families, a national nonprofit charitable organization with the aim to strengthen and support families, contains Parents’ Tip of the Week, Parenting A–Z, BrainWonders, a glossary, and links to the Erikson Institute and other Internet sites.
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National Network for Child Care
www.nncc.org
Site presented by the Cooperative Extension System’s National Network for Child Care contains a list of over 1,000 publications and resources related to child care, an e-mail listserv, and a newsletter.

The Clearinghouse on International Developments on Child, Youth and Family Policies
www.childpolicyintl.org
Site maintained at Columbia University contains international comparisons of child and family policies.