

# 01 - 31.1 Introduction Infant, Child, and Adolescence

## 31.1 Introduction: Infant, Child, and Adolescent Development

Child Psychiatry 31.1 Introduction: Infant, Child, and Adolescent Development The transactional nature of development in infancy, childhood, and adolescence, consisting of a continuous interplay between biological predisposition and environmental experiences, forms the basis of current conceptualizations of development. There is much evidence that observed developmental outcomes evolve from interactions between particular biological substrates and specific environmental events. For example, the serotonin transporter gene sensitizes a child with early adverse experiences of abuse or neglect to increased risk for later development of a depressive disorder. In addition, the degree of resilience and adaptation, that is, the ability to withstand adversity without negative effects, is likely to be mediated by endogenous glucocorticoids, cytokines, and neurotrophins. Thus, allostasis, the process of achieving stability in the face of adverse environmental events, results from interactions between specific environmental challenges and particular genetic backgrounds that combine to result in a response. It is widely accepted that adverse childhood experiences (ACEs) are likely to alter the trajectory of development in a given individual, and that during early development the brain is especially vulnerable to injury. Future studies may uncover windows of plasticity in older children and adolescents that affect vulnerability as well. Changes in both white matter and gray matter in the brains of adolescents are linked to increased acquisition of subtle social skills. Adolescents' keen abilities, competencies, and interests in a host of technological advances—including the Internet, social media sites such as Facebook, Twitter, and Instagram, and smart phones, to name a few—shed some light on their potential to adapt to new and challenging demands.

**PRENATAL, INFANT, AND CHILD** The phases of development described in this section are defined as follows: prenatal is the time frame from conception to 8 weeks; the fetus, from 8 weeks to birth; infancy, from birth to 15 months; the toddler period, from 15 months to 2½ years; the preschool period, from 2½ years to 6 years; and the middle years, from 6 to 12 years.

**PRENATAL** Historically, the

analysis of human development began with birth. The influence of endogenous and exogenous in utero factors, however, now requires that developmental

schemes take intrauterine events into consideration. The infant is not a tabula rasa, a smooth slate upon which outside influences etch patterns. To the contrary, the newborn has already been influenced by myriad factors that have occurred in the safety of the womb, the result of which has produced wide individual differences among infants. For example, the studies of Stella Chess and Alexander Thomas (described later) have demonstrated a wide range of temperamental differences among newborns. Maternal stress, through the production of adrenal hormones, also influences behavioral characteristics of newborns. The time frame in which the development of the embryo and fetus occurs is known as the prenatal period. After implantation, the egg begins to divide and is known as an embryo. Growth and development occur at a rapid pace; by the end of 8 weeks, the shape is recognizably human, and the embryo has become a fetus. Figure 31.1-1 illustrates a sonogram of a 9-week and 15-week fetus in utero. FIGURE 31.1-1 A. Sonogram of fetus at 9 weeks. B. Same fetus at 15 weeks. (Courtesy K.C. Attwell, M.D.) The fetus maintains an internal equilibrium that, with variable effects, interacts continuously with the intrauterine environment. In general, most disorders that occur are multifactorial—the result of a combination of effects, some of which can be additive. Damage at the fetal stage usually has a more global impact than damage after birth, because rapidly growing organs are the most vulnerable. Boys are more vulnerable to developmental damage than girls are; geneticists recognize that in humans and animals, female fetuses show a propensity for greater biological vigor than male fetuses, possibly because of the second X chromosome in the female. Prenatal Life Much biological activity occurs in utero. A fetus is involved in a variety of behaviors that are necessary for adaptation outside the womb. For example, a fetus sucks on thumb and fingers; folds and unfolds its body, and eventually assumes a position in which its occiput is in an anterior vertex position, which is the position in which fetuses usually exit the uterus.

Behavior. Pregnant women are extraordinarily sensitive to prenatal movements. They describe their unborn babies as active or passive, as kicking vigorously or rolling around, as quiet when the mothers are active, but as kicking as soon as the mothers try to rest. Women usually detect fetal movements 16 to 20 weeks into the pregnancy; the fetus can be artificially set into total body motion by in utero stimulation of its ventral skin surfaces by the 14th week. The fetus may be able to hear by the 18th week, and it responds to loud noises with muscle contractions, movements, and an increased heart rate. Bright light flashed on the abdominal wall of the 20-week pregnant woman causes changes in fetal heart rate and position. The retinal structures begin to function at that time. Eyelids open at 7 months. Smell and taste are also developed at this time, and the fetus responds to substances that may be injected into the amniotic sac, such as contrast medium. Some reflexes present at birth exist in utero: the grasp reflex, which appears at 17 weeks; the Moro (startle) reflex, which appears at 25 weeks; and the sucking reflex, which appears at about 28 weeks. Nervous System. The nervous system arises from the neural plate, which is a dorsal ectodermal thickening that appears on about day 16 of gestation. By the sixth week, part of the neural tube becomes the cerebral vesicle, which later becomes the cerebral hemispheres (Fig. 31.1-2). FIGURE 31.1-2 Formation of the neural tube and neural crest. These schematic illustrations follow the early development of the nervous system in the embryo. The drawings above are dorsal

views of the embryo; those below are cross sections. A. The primitive embryonic central nervous system (CNS) begins as a thin sheet of ectoderm. B. The first important step in the development of the nervous system is the formation of the neural groove. C. The walls of the groove, called neural folds, come together and fuse, forming the neural tube. D. The bits of neural ectoderm that are pinched off when the tube rolls up are called the neural crest, from which the peripheral nervous system (PNS) will develop. The somites are mesoderm that will give rise to much of the skeletal system and the muscles. (Reprinted from Bear MF, Connors BW, Paradiso MA, eds. *Neuroscience: Exploring the Brain*. 2nd ed. Philadelphia: Lippincott Williams & Wilkins. 2001:179, with permission.) The cerebral cortex begins to develop by the 10th week, but layers do not appear until the sixth month of pregnancy; the sensory cortex and the motor cortex are formed before the association cortex. Some brain function has been detected in utero by fetal encephalographic responses to sound. The human brain weighs about 350 g at birth and 1,450 g at full adult development, a fourfold increase, mainly in the neocortex. This increase is almost entirely because of the growth in the number and branching of dendrites establishing new connections. After birth, the number of new neurons is negligible. Uterine contractions can contribute to fetal neural development by causing the developing neural network to receive and transmit sensory impulses. Pruning Pruning refers to the programmed elimination during development of neurons, synapses, axons, and other brain structures from the original number, present at birth, to a lesser number. Thus, the developing brain contains structures and cellular elements that are absent in the older brain. The fetal brain generates more neurons than it will need for adult life. For example, in the visual cortex, neurons increase in number from birth to 3 years of age, at which point they diminish in number. Another example is that the adult brain contains fewer neural connections than were present during the early and middle years of childhood. Approximately twice as many synapses are present in certain parts of the cerebral cortex during early postnatal life than during adulthood. Pruning occurs to rid the nervous system of cells that have served their function in the development of the brain. Some neurons, for example, exist to produce neurotrophic or growth factors and are programmed to die—a process called apoptosis—when that function is fulfilled. The implication of these observations is that the immature brain can be vulnerable in locations that lack sensitivity to injury later on. The developing white matter of the human brain before 32 weeks of gestation is especially sensitive to damage from hypoxic and ischemic injury and metabolic insults. Neurotransmitter receptors located on synaptic terminals are subject to injury from excessive stimulation by excitatory amino acids, (e.g., glutamate, aspartate), a process referred to as excitotoxicity. Research is proceeding on the implications of such events in the etiology of child and adult neuropsychiatric disorders such as schizophrenia.

**Maternal Stress** Maternal stress correlates with high levels of stress hormones (epinephrine, norepinephrine, and adrenocorticotrophic hormone) in the fetal bloodstream, which act directly on the fetal neuronal network to increase blood pressure, heart rate, and activity level. Mothers with high levels of anxiety are more likely to have babies who are hyperactive, irritable, and of low birth weight, and who have problems feeding and sleeping than are mothers with low anxiety levels. A fever in the mother causes the fetus's temperature to rise. **Genetic Disorders** In many cases, genetic counseling depends on prenatal diagnosis. The diagnostic techniques used include amniocentesis (transabdominal aspiration of fluid from the amniotic sac), ultrasound examinations, x-ray studies, fetoscopy (direct visualization of the fetus), fetal blood and skin sampling, chorionic villus sampling, and  $\alpha$ -fetoprotein screening. In about 2 percent of women tested, the results are positive for some abnormality, including X-linked disorders, neural tube defects (detected by high

levels of  $\alpha$ -fetoprotein), chromosomal disorders (e.g., trisomy 21), and various inborn errors of metabolism (e.g., Tay-Sachs disease and lipidoses). Figure 31.1-3 illustrates hypertelorism of the eyes. FIGURE 31.1-3 Hypertelorism. Note the wide distance between the eyes, flat nasal bridge, and external strabismus. (Courtesy of Michael Malone, M.D. Children's Hospital, Washington, D.C.) Some diagnostic tests carry a risk; for instance, about 5 percent of women who

undergo fetoscopy miscarry. Amniocentesis, which is usually performed between the 14th and 16th weeks of pregnancy, causes fetal damage or miscarriage in less than 1 percent of women tested. Fully 98 percent of all prenatal tests in pregnant women reveal no abnormality in the fetus. Prenatal testing is recommended for women older than 35 years of age and for those with a family history of a congenital defect. Parental reactions to birth defects can include feelings of guilt, anxiety, or anger as their worst fears during the pregnancy are realized. Some degree of depression over the loss of the fantasized perfect child may be observed before the parents develop more active coping strategies. Termination of a pregnancy because of a known or suspected birth defect is an option chosen by some women. Maternal Drug Use Alcohol. Alcohol use in pregnancy is a major cause of serious physical and mental birth defects in children. Each year, up to 40,000 babies are born with some degree of alcohol-related damage. The National Institute on Drug Abuse (NIDA) reports that 19 percent of pregnant women used alcohol during their pregnancy, the highest rate being among white women. Fetal alcohol syndrome (Fig. 31.1-4) affects about one third of all infants born to alcoholic women. The syndrome is characterized by growth retardation of prenatal origin (height, weight); minor anomalies, including microphthalmia (small eyeballs), short palpebral fissures, midface hypoplasia (underdevelopment), a smooth or short philtrum, and a thin upper lip; and central nervous system (CNS) manifestations, including microcephaly (head circumference below the third percentile), a history of delayed development, hyperactivity, attention deficits, learning disabilities, intellectual deficits, and seizures. The incidence of infants born with fetal alcohol syndrome is about 0.5 per 1,000 live births.

FIGURE 31.1-4 Photographs of children with "fetal-alcohol syndrome." A. Severe case. B. Slightly affected child. Note in both children the short palpebral fissures and hypoplasia of the maxilla. Usually, the defect includes other craniofacial abnormalities. Cardiovascular defects and limb deformities are also common symptoms of the fetal alcohol syndrome. (From Langman J. *Medical Embryology*. 7th ed. Philadelphia: Williams & Wilkins; 1995:108, with permission.) Some studies suggest that alcohol use during pregnancy may contribute to attention-deficit/hyperactivity disorder (ADHD). Animal experiments have shown that alcohol reduces the number of active dopamine neurons in the midbrain area, and ADHD is associated with reduced dopaminergic activity in the brain. Smoking. Smoking during pregnancy is associated with both premature births and below-average infant birth weight. Some reports have associated sudden infant death syndrome (SIDS) with mothers who smoke. Other Substances. Marijuana (used by 3 percent of all pregnant women) and cocaine (used by 1 percent) are the two most commonly abused illegal drugs, followed by heroin. Chronic marijuana use is associated with low infant birth weight, prematurity, and withdrawal-like symptoms, including excessive crying, tremors, and hyperemesis (severe and chronic vomiting). Crack cocaine use by women during pregnancy has been correlated with behavioral abnormalities such as increased irritability and crying and decreased desire for human contact. Infants born to mothers dependent on narcotics go through a withdrawal syndrome at birth. Prenatal exposure to various prescribed medications can also result in abnormalities. Common drugs with teratogenic effects include antibiotics (tetracyclines), anticonvulsants

(valproate [Depakene], carbamazepine [Tegretol], phenytoin [Dilantin]), progesterone-estrogens, lithium (Eskalith), and warfarin (Coumadin). Table 31.1-1 outlines the etiologies of malformations that may emerge during the first year of life. Table 31.1-1 Causes of Human Malformations Observed During the First Year of Life

**INFANCY** The delivery of the fetus marks the start of infancy. The average newborn weighs about 3,400 g (7.5 lb.). Small fetuses, defined as those with a birth weight below the 10th percentile for their gestational age, occur in about 7 percent of all pregnancies. At the 26th to the 28th week of gestation, the prematurely born fetus has a good chance of survival. Arnold Gesell described developmental landmarks that are widely used in both pediatrics and child psychiatry. These landmarks outline the sequence of children's motor, adaptive, and personal-social behavior from birth to 6 years (Table 31.1-2). Table 31.1-2 Landmarks of Normal Behavioral Development

Premature infants are defined as those with a gestation of less than 34 weeks or a birth weight less than 2,500 g (5.5 lb.). Such infants are at increased risk for learning disabilities, such as dyslexia, emotional and behavioral problems, mental retardation, and child abuse. With each 100 g increment of weight, beginning at about 1,000 g (2.2 lb.), infants have a progressively better chance of survival. A 36-week-old fetus has less chance of survival than a 3,000 g (6.6 lb) fetus born close to term. The differences between full-term and infants born prematurely are shown in Figure 31.1-5. FIGURE 31.1-5 Contrast between full-term (A and B) and premature (C and D) infants. Note the limp sprawl of the baby in C and the difficulty in raising the head to clear the nose and mouth in D. (Reprinted from Stone LJ, Church J. *Childhood and Adolescence*. 4th ed. New York: Random House; 1979:7, with permission.) Postmature infants are defined as infants born 2 weeks or more beyond the expected date of birth. Because pregnancy at term is calculated as extending 40 weeks from the last menstrual period and the exact time of fertilization varies, the incidence of postmaturity is high if based on menstrual history alone. The postmature baby typically has long nails, scanty lanugo, more scalp hair than usual, and increased alertness. Developmental Milestones in Infants Reflexes and Survival Systems at Birth. Reflexes are present at birth. They include the rooting reflex (puckering of the lips in response to perioral stimulation), the grasp reflex, the plantar (Babinski) reflex, the knee reflex, the abdominal reflexes, the

startle (Moro) reflex (Fig. 31.1-6), and the tonic neck reflex. In normal children, the grasp reflex, the startle reflex, and the tonic neck reflex disappear by the fourth month. The Babinski reflex usually disappears by the 12th month. FIGURE 31.1-6 Moro reflex. (Reprinted with permission from Stone LJ, Church J. *Childhood and Adolescence*. 4th ed. New York: Random House 1979:14 with permission.) Survival systems—breathing, sucking, swallowing, and circulatory and temperature homeostasis—are relatively functional at birth, but the sensory organs are incompletely developed. Further differentiation of neurophysiological functions depends on an active process of stimulatory reinforcement from the external environment, such as persons touching and stroking the infant. The newborn infant is awake for only a short period each day; rapid eye movement (REM) and non-REM sleep are present at birth. Other spontaneous behaviors include crying, smiling, and penile erection in males. Infants 1 day old can detect the smell of their mother's milk, and those 3 days old distinguish their mother's voice. Language and Cognitive Development. At birth, infants can make noises, such as crying, but they do not vocalize until about 8 weeks. At that time, guttural or babbling sounds occur spontaneously, especially in response to the mother. The persistence and further evolution of children's vocalizations depend on parental reinforcement. Language

development occurs in well-delineated stages as outlined in Table 31.1-3. Table 31.1-3 Language Development

By the end of infancy (about 2 years), infants have transformed reflexes into voluntary actions that are the building blocks of cognition. They begin to interact with the environment, to experience feedback from their own bodies, and to become intentional in their actions. By the end of the second year of life, children begin to use symbolic play and language. Jean Piaget (1896–1980), a Swiss psychologist, observed the growing capacity of young children (including his own) to think and to reason. An outline of the Piaget's stages of cognitive development is presented in Table 31.1-4. Table 31.1-4 Piaget's Stages of Cognitive Development

Emotional and Social Development. By the age of 3 weeks, infants imitate the facial movements of adult caregivers. They open their mouths and thrust out their tongues in response to adults who do the same. By the third and fourth months of life, these behaviors are easily elicited. These imitative behaviors are believed to be the

precursors of the infant's emotional life. The smiling response occurs in two phases: the first phase is endogenous smiling, which occurs spontaneously within the first 2 months and is unrelated to external stimulation; the second phase is exogenous smiling, which is stimulated from the outside, usually by the mother, and occurs by the 16th week. The stages of emotional development parallel those of cognitive development. Indeed, the caregiving person provides the major stimulus for both aspects of mental growth. Human infants depend totally on adults for survival. Through warm and predictable interactions, an infant's social and emotional repertoire expands with the interplay of caregivers' social responses (Table 31.1-5). Table 31.1-5 Emotional Development In the first year, infants' moods are highly variable and intimately related to internal states such as hunger. Toward the second two thirds of the first year, infants' moods grow increasingly related to external social cues; a parent can get even a hungry infant to smile. When the infant is internally comfortable, a sense of interest and pleasure in the world and in its primary caregivers should prevail. Prolonged separation from the mother (or other primary caregiver) during the second 6 months of life can lead to depression that may persist into adulthood as part of an individual's character.

Temperamental Differences There are strong suggestions of inborn differences and wide variability in autonomic reactivity and temperament among individual infants. Chess and Thomas identified nine behavioral dimensions, in which reliable differences among infants can be observed

(Table 31.1-6). Table 31.1-6 Temperament—Newborn to 6 Years Most temperamental dimensions of individual children showed considerable stability over a 25-year follow-up period, but some temperamental traits did not persist. This finding was attributed to genetic and environmental effects on personality. A complex interplay exists among the initial characteristics of infants, the mode of parental interactions, and children's subsequent behavior. Observations of the stability and plasticity of certain temperamental traits support the importance of interactions between genetic endowment (nature) and environmental experience (nurture) in behavior. Attachment Bonding is the term used to describe the intense emotional and psychological relationship a mother develops for her baby. Attachment is the relationship the baby develops with its caregivers. Infants in the first months after birth become attuned to social and interpersonal interaction. They show a rapidly increasing responsiveness to the external environment and an ability to form a special relationship with significant primary caregivers—that is, to form an attachment. Table 31.1-7 lists

the commonly observed attachment styles. Table 31.1-7 Types of Attachment

**Harry Harlow.** Harry Harlow studied social learning and the effects of social isolation in monkeys. Harlow placed newborn rhesus monkeys with two types of surrogate mothers—one a wire-mesh surrogate with a feeding bottle and the other a wire-mesh surrogate covered with terry cloth. The monkeys preferred the terry-cloth surrogates, which provided contact and comfort, to the feeding surrogate. (When hungry, the infant monkeys would go to the feeding bottle but then would quickly return to the terry-cloth surrogate.) When frightened, monkeys raised with terry-cloth surrogates showed intense clinging behavior and appeared to be comforted, whereas those raised with wire-mesh surrogates gained no comfort and appeared to be disorganized. The results of Harlow's experiments were widely interpreted as indicating that infant attachment is not simply the result of feeding. Both types of surrogate-reared monkeys were subsequently unable to adjust to life in a monkey colony and had extraordinary difficulty learning to mate. When impregnated, the female monkeys failed to mother their young. These behavioral peculiarities were attributed to the isolates' lack of mothering in infancy.

**John Bowlby.** John Bowlby studied the attachment of infants to mothers and concluded that early separation of infants from their mothers had severe negative effects on children's emotional and intellectual development. He described attachment behavior, which develops during the first year of life, as the maintenance of physical contact between the mother and child when the child is hungry, frightened, or in distress.

**Mary Ainsworth.** Mary Ainsworth expanded on Bowlby's observations and found that the interaction between mother and baby during the attachment period influences the baby's current and future behavior significantly. Many observers believe that patterns of infant attachment affect future adult emotional relationships. Patterns of attachment vary among babies; for example, some babies signal or cry less than others. Sensitive responsiveness to infant signals, such as cuddling the baby when it cries, causes infants to cry less in later months. Close bodily contact with the mother when the baby signals for her is also associated with the growth of self-reliance, rather than clinging dependence, as the baby grows older. Unresponsive mothers produce anxious babies. Ainsworth also confirmed that attachment serves to reduce anxiety. What she called the secured base effect enables a child to move away from the attachment figure and explore the environment. Inanimate objects, such as a teddy bear or a blanket (called the transitional object by Donald Winnicott), also serve as a secure base, one that often accompanies children as they investigate the world. A growing body of literature derived from direct observation of mother-infant interactions and longitudinal studies has expanded on, and refined, Ainsworth's original descriptions. Maternal sensitivity and responsiveness are the main determinants of secure attachment. But when the attachment is insecure, the type of insecurity (avoidant, anxious, or ambivalent) is determined by infant temperament. Overall, male infants are less likely to have secure attachments and are more vulnerable to changes in maternal sensitivity than are female infants. The attachment of the firstborn child is decreased by the birth of a second, but it is decreased much more when the firstborn is 2 to 5 years of age when the younger sibling is born than when the firstborn is younger than 24 months. Not surprisingly, the extent of the decrease also depends on the mother's own sense of security, confidence, and mental health.

**Social Deprivation Syndromes and Maternal Neglect.** Investigators, especially René Spitz, have long documented the severe developmental retardation that accompanies maternal rejection and neglect. Infants in institutions characterized by low staff-to-infant ratios and frequent turnover of personnel tend to display marked developmental retardation, even with adequate physical care and freedom from infection. The

same infants, placed in adequate foster or adoptive care, exhibit marked acceleration in development. Fathers and Attachment. Babies become attached to fathers as well as to mothers, but the attachment is different. Generally, mothers hold babies for caregiving, and fathers hold babies for purposes of play. Given a choice of either parent after separation, infants usually go to the mother, but if the mother is unavailable they turn to the father for comfort. Babies raised in extended families or with multiple caregivers are able to establish many attachments.

Stranger Anxiety. A developmentally expected fear of strangers is first noted in infants at about 26 weeks of age, and more fully developed by 32 weeks (8 months). At the approach of a stranger, infants cry and cling to their mothers. Babies exposed to only one caregiver are more likely to have stranger anxiety than babies exposed to a variety of caregivers. Stranger anxiety is believed to result from a baby's growing ability to distinguish caregivers from all other persons. Separation anxiety, which occurs between 10 and 18 months of age, is related to stranger anxiety but is not identical to it. Separation from the person to whom the infant is attached precipitates separation anxiety. Stranger anxiety, however, occurs even when the infant is in the mother's arms. The infant learns to separate as it starts to crawl and move away from the mother, but the infant constantly looks back and frequently returns to the mother for reassurance. Margaret Mahler (1897-1985) proposed a theory to describe how young children acquire a sense of identity separate from that of their mothers'. Her theory of separation-individuation was based on observations of the interactions of children and their mothers. Mahler's stages of separation-individuation are outlined in Table 31.1-8. Table 31.1-8 Stages of Separation-Individuation Proposed by Mahler Infant Care Clinicians are now beginning to view infants as important actors in the family drama, ones who partly determine its course. Infants' behavior controls mothers' behavior, just as mothers' behavior modulates infants' behavior. A calm, smiling, predictable infant is a powerful reward for tender maternal care. A jittery, irregular, irritable infant tries a mother's patience. When a mother's capacity for giving is marginal, such infant traits

may cause her to turn away from her child and thus complicate the child's alreadytroubled beginnings. Parental Fit Parental fit describes how well the mother or father relates to the newborn or developing infant; the idea takes into account temperamental characteristics of both parent and child. Each newborn has innate psychophysiological characteristics, which are known collectively as temperament. Chess and Thomas identified a range of normal temperamental patterns, from the difficult child at one end of the spectrum to the easy child at the other end. Difficult children, who make up 10 percent of all children, have a hyperalert physiological makeup. They react intensely to stimuli (cry easily at loud noises), sleep poorly, eat at unpredictable times, and are difficult to comfort. Easy children, who make up 40 percent of all children, are regular in eating, eliminating, and sleeping; they are flexible, can adapt to change and new stimuli with a minimum of distress, and are easily comforted when they cry. The other 50 percent of children are mixtures of these two types. The difficult child is harder to raise and places greater demands on the parent than the easy child. Chess and Thomas used the term goodness of fit to characterize the harmonious and consonant interaction between a mother and a child in their motivations, capacities, and styles of behavior. Poor fit is likely to lead to distorted development and maladaptive functioning. A difficult child must be recognized, because parents of such infants often have feelings of inadequacy and believe that they are doing something wrong to account for the child's difficulty in sleeping and eating and their problems comforting the child. In addition, most difficult children have emotional disturbances later in life. Good-Enough Mothering. Winnicott believed that infants begin life in a

state of nonintegration, with unconnected and diffuse experiences, and that mothers provide the relationship that enables infants' incipient selves to emerge. Mothers supply a holding environment in which infants are contained and experienced. During the last trimester of pregnancy and for the first few months of a baby's life, the mother is in a state of primary maternal preoccupation, absorbed in fantasies about, and experiences with, her baby. The mother need not be perfect, but she must provide good-enough mothering. She plays a vital role in bringing the world to the child and offering empathic anticipation of the infant's needs. If the mother can resonate with the infant's needs, the baby can become attuned to its own bodily functions and drives that are the basis for the gradually evolving sense of self. TODDLER PERIOD The second year of life is marked by accelerated motor and intellectual development. The ability to walk gives toddlers some control over their own actions; this mobility enables children to determine when to approach and when to withdraw. The acquisition

of speech profoundly extends their horizons. Typically, children learn to say "no" before they learn to say "yes." Toddlers' negativism is vital to the development of independence, but if it persists, oppositional behavior connotes a problem. Learning language is a crucial task in the toddler period. Vocalizations become distinct, and toddlers can name a few objects and make needs known in one or two words. Near the end of the second year and into the third year, toddlers sometimes use short sentences. The pace of language development varies considerably from child to child, and although a small number of children are truly late developers, most child experts recommend a hearing test if the child is not making two-word sentences by age 2. Developmental Milestones in Toddlers Language and Cognitive Development. Toddlers begin to listen to explanations that can help them tolerate delay. They create new behaviors from old ones (originality) and engage in symbolic activities, for instance, using words and playing with dolls when the dolls represent something, such as a feeding sequence. Toddlers have varied capacities for concentration and self-regulation. Emotional and Social Development. In the second year, pleasure and displeasure become further differentiated. Social referencing is often apparent at this age; the child looks to parents and others for emotional cues about how to respond to novel events. Toddlers show exploratory excitement, assertive pleasure, and pleasure in discovery and in developing new behavior (e.g., new games), including teasing and surprising or fooling the parent (e.g., hiding). The toddler has capacities for an organized demonstration of love, as when the toddler runs up and hugs, smiles, and kisses the parent at the same time, and of protest when the toddler turns away, cries, bangs, bites, hits, yells, and kicks. Comfort with family and apprehension with strangers may increase. Anxiety appears to be related to disapproval and the loss of a loved caregiver and can be disorganizing. Sexual Development. Sexual differentiation is evident from birth, when parents start dressing and treating infants differently because of the expectations evoked by sex typing. Through imitation, reward, and coercion, children assume the behaviors that their cultures define as appropriate for their sexual roles. Children exhibit curiosity about anatomical sex. When their curiosity is recognized as healthy and is met with honest, age-appropriate replies, children acquire a sense of the wonder of life and are comfortable with their own roles. If the subject of sex is taboo and children's questions are rebuffed, shame and discomfort may result. Gender identity, the conviction of being male or female, begins to manifest at 18 months of age and is often fixed by 24 to 30 months. It was once widely believed that gender identity was primarily a function of social learning. John Money reported on children with ambiguous or damaged external genitalia who were raised as the sex

opposite to their chromosomal sex. Long-term follow-up of those individuals suggests that the major part of gender identity is innate and that rearing may not affect the genetic diathesis. Gender role describes the behavior that society deems appropriate for one sex or another, and it is not surprising that significant cultural differences exist. There may be different expectations for boys and girls in what and with whom they play, their tone of voice, the expression of emotions, and how they dress. Nevertheless, some generalizations are possible. Boys are more likely than girls to engage in rough and tumble play. Mothers talk more to girls than to boys, and by the time the child is 2 years of age, fathers generally pay more attention to boys. Many educated, middle-class parents determined to raise nonsexist children are startled to see their children's determined preference for sex-stereotyped toys: girls want to play with dolls, and boys with guns.

**Toilet Training.** The second year of life is a period of increasing social demands on children. Toilet training serves as a paradigm of the family's general training practices; that is, the parent who is overly severe in the area of toilet training is likely to be punitive and restrictive in other areas also. Control of daytime urination is usually complete by the age of 2½, and control of nighttime urination is usually complete by the age of 4 years, when bowel control is usually accomplished. Since 1900, the pendulum has swung between extremes of permissiveness and control in toilet training. The trend in the United States has been toward delayed training, but in the last few years this trend appears to be shifting back to early training. Toddlers may have sleep difficulties related to fear of the dark, which can often be managed by using a nightlight. Most toddlers generally sleep about 12 hours a day, including a 2-hour nap. Parents must be aware that children of this age may need reassurance before going to bed and that the average 2-year-old takes about 30 minutes to fall asleep.

**Parenting Challenges.** In infancy, the major responsibility for parents is to meet the infant's needs in a sensitive and consistent fashion. The parental task in the toddler stage requires firmness about the boundaries of acceptable behavior and encouragement of the child's progressive emancipation. Parents must be careful not to be too authoritarian at this stage; children must be allowed to operate for themselves and to learn from their mistakes and must be protected and assisted when challenges are beyond their abilities. During the toddler period, children are likely to struggle for the exclusive affection and attention of their parents. This struggle includes rivalry, both with siblings and with one or another parent for the star role in the family. Although children are beginning to be able to share, they do so reluctantly. When the demands for exclusive possession are not resolved effectively, the result is likely to be jealous competitiveness in relationships with peers and lovers. The fantasies aroused by the struggle lead to fear of retaliation and to displacement of fear onto external objects. In an equitable, loving family a child

elaborates a moral system of ethical rights. Parents need to balance between punishment and permissiveness and set realistic limits on a toddler's behavior.

**PRESCHOOL PERIOD** The preschool period is characterized by marked physical and emotional growth. Generally, between 2 and 3 years of age, children reach half their adult height. The 20 baby teeth are in place at the beginning of the stage, and by the end they begin to fall out. Children are ready to enter school by the time the stage ends at age 5 or 6. They have mastered the tasks of primary socialization—to control their bowels and urine, to dress and feed themselves, and to control their tears and temper outbursts, at least most of the time. The term preschool for the age group of 2½ to 6 years may be a misnomer; many children are already in school-like settings, such as preschool nurseries and day care centers, where working mothers must often place their children. Preschool education can be valuable, but stressing academic advancement too far beyond a child's capabilities can be

counterproductive. Developmental Milestones in Preschoolers Language and Cognitive Development. In the preschool period, children's use of language expands, and they use sentences. Individual words have regular and consistent meanings at the beginning of the period, and children begin to think symbolically. In general, however, their thinking is egocentric; they cannot place themselves in the position of another child and are incapable of empathy. Children think intuitively and prelogically and do not understand causal relations. Emotional and Social Behavior. At the start of the preschool period, children can express such complex emotions as love, unhappiness, jealousy, and envy, both preverbally and verbally. Their emotions are still easily influenced by somatic events, such as tiredness and hunger. Although they still think mostly egocentrically, children's capacity for cooperation and sharing is emerging. Anxiety is related to loss of a person who was loved and depended on and to loss of approval and acceptance. Although still potentially disorganizing, anxiety can be tolerated better than in the past. Four-year-olds are learning to share and to have concern for others. Feelings of tenderness are sometimes expressed. Anxiety over bodily injury and the loss of a loved person's approval is sometimes disruptive. By the end of the preschool period, children have many relatively stable emotions. Expansiveness, curiosity, pride, and gleeful excitement related to the self and the family are balanced with coyness, shyness, fearfulness, jealousy, and envy. Shame and humiliation are evident. Capacities for empathy and love are developed but are fragile and easily lost if competitive or jealous strivings intervene. Anxiety and fears are related to bodily injury and loss of respect, love, and emerging self-esteem. Guilt

feelings are possible. Children between the ages of 3 and 6 years are aware of their bodies, and of differences between the sexes. In their play, doctor-nurse games allow children to act out their sexual fantasies. Their awareness of their bodies extends beyond the genitalia; they show a preoccupation with illness or injury, so much so that the period has been called "the Band-Aid phase." Every injury must be examined and taken care of by a parent. Children develop a division between what they want and what they are told to do. The division increases until a gap grows between their set of expanded desires, their exuberance at unlimited growth, and their parents' restrictions; they gradually turn parental values into self-obedience, self-guidance, and self-punishment. At the end of the preschool stage, the child's conscience is evolving. The development of a conscience sets the tone for the moral sense of "right and wrong." Until about 7 years of age, children typically experience rules as "absolute" and as existing for their own sake. They do not understand that more than one point of view on a moral issue may exist; a violation of the rules calls for absolute retribution—that is, children have the notion of immanent justice. SIBLING RIVALRY. In the preschool period, children relate to others in new ways. The birth of a sibling (a common occurrence during this time) tests a preschool child's capacity for further cooperation and sharing but may also evoke sibling rivalry, which is most likely to occur at this time. Sibling rivalry depends on child-rearing practice. Favoritism for any reason commonly aggravates such rivalry. Children who get special treatment because they are gifted, are defective in some way, or have a preferred gender are likely to receive angry feelings from their siblings. Experiences with siblings can influence growing children's relationships with peers and authority; for example, a problem may result if the needs of a new baby prevent the mother from attending to a firstborn child's needs. If not handled properly, the displacement of the firstborn can be a traumatic event. PLAY. In the preschool years, children begin to distinguish reality from fantasy, and play reflects this growing awareness. Pretend games are popular and help test real-life situations in a playful manner. Dramatic play in which children act out a role, such as a housewife or a truck driver, is

common. One-to-one play relationships advance to complicated patterns with rivalries, secrets, and two-against-one intrigues. Children's play behavior reflects their level of social development. Between 2½ and 3 years, children commonly engage in parallel play, solitary play alongside another child with no interaction between them. By age 3, play is often associative, that is, playing with the same toys in pairs or in small groups, but still with no real interaction among them. By age 4, children are usually able to share and engage in cooperative play. Real interactions and taking turns become possible. Between 3 and 6 years of age, growth can be traced through drawings. A child's first drawing of a human being is a circular line with marks for the mouth, nose, and eyes; ears and hair are added later; arms and stick-like fingers appear next; and then legs

appear. Last to appear is a torso in proportion to the rest of the body. Intelligent children can deal with details in their art. Drawings express creativity throughout a child's development: They are representational and formal in early childhood, make use of perspective in middle childhood, and become abstract and affect-laden in adolescence. Drawings also reflect children's body image concepts and sexual and aggressive impulses. **IMAGINARY COMPANIONS.** Imaginary companions most often appear during preschool years, usually in children with above-average intelligence and usually in the form of persons. Imaginary companions may also be things, such as toys that are anthropomorphized. Some studies indicate that up to 50 percent of children between the ages of 3 and 10 years have imaginary companions at one time or another. Their significance is not clear, but these figures are usually friendly, relieve loneliness, and reduce anxiety. In most instances, imaginary companions disappear by age 12, but they can occasionally persist into adulthood. **MIDDLE YEARS** The period between age 6 and puberty is often called the middle years. During this time, children enter elementary school. The formal demands for academic learning and accomplishment become major determinants of further personality development. **Developmental Milestones in School-age Children Language and Cognitive Development.** In the middle years, language expresses complex ideas with relations among several elements. Logical exploration tends to dominate fantasy, and children show an increased interest in rules and orderliness and an increased capacity for self-regulation. During this period, children's conceptual skills develop, and thinking becomes organized and logical. The ability to concentrate is well established by age 9 or 10, and by the end of the period, children begin to think in abstract terms. Improved gross motor coordination and muscle strength enable children to write fluently and draw artistically. They are also capable of complex motor tasks and activities, such as tennis, gymnastics, golf, baseball, and skateboarding. Recent evidence has shown that changes in thinking and reasoning during the middle years result from maturational changes in the brain. Children are now capable of increased independence, learning, and socialization. Theorists consider moral development a gradual, stepwise process spanning childhood, adolescence, and young adulthood. In the middle years, both girls and boys make new identifications with other adults, such as teachers and counselors. These identifications may so influence girls that their goals of wanting to marry and have babies, as their mothers did, may be combined with a desire for a career or may be postponed or abandoned entirely. Girls who cannot identify with their mothers or whose fathers are overly attached may

become fixated at about a 6-year-old level; as a result, they may fear men or women or both or become seductively close to them. In either case, such girls may not be seen as normal during the school-age years. A similar situation can occur in boys who have been unable to identify successfully with fathers who were aloof, brutal, or absent. Perhaps his mother prevented a boy from identifying with his father by being overprotective or by binding the son too closely to her. As

a result, boys may enter this period with a variety of problems. They may be fearful of men, unsure of their sense of masculinity, or unwilling to leave their mothers (sometimes manifested by a school phobia); they may lack initiative and be unable to master school tasks, thus incurring academic problems. The school-age period is a time when peer interaction assumes major importance. Interest in relationships outside the family takes precedence over those within the family. Nevertheless, a special relationship exists with the same-sex parent, with whom children identify and who is now an ideal and a role model. Empathy and concern for others begin to emerge early in the middle years; by the time children are 9 or 10, they have well-developed capacities for love, compassion, and sharing. They have a capacity for long-term, stable relationships with family, peers, and friends, including best friends. Emotions about sexual differences begin to emerge as either excitement or shyness with the opposite sex. School-age children prefer to interact with children of the same sex. Although the middle years have sometimes been referred to as a latency period—a moratorium on psychosexual exploration and play until the eruption of sexual impulses with puberty—it is now recognized that a considerable amount of sexual interest continues through these years. Sex play and curiosity are common, especially among boys, but also among girls. Boys compare genitals and sometimes engage in group or mutual masturbation. An interest in anal humor and toilet jokes is often seen. Children this age often start using sexual and excretory words as expletives.

**BEST FRIEND.** Harry Stack Sullivan postulated that a buddy, or best friend, is an important phenomenon during the school years. By about 10 years of age, children develop a close same-sex relationship, which Sullivan believed is necessary for further healthy psychological growth. Moreover, Sullivan believed that the absence of a chum during the middle years of childhood is an early harbinger of schizophrenia.

**SCHOOL REFUSAL.** Some children refuse to go to school at this time, generally because of separation anxiety. A fearful mother may transmit her own fear of separation to a child, or a child who has not resolved dependence needs panics at the idea of separation. School refusal is usually not an isolated problem; children with the problem typically avoid many other social situations.

**Sex Role Development** Persons' sex roles are similar to their gender identity; persons see themselves as male or female. The sex role also involves identification with culturally acceptable masculine or feminine ways of behaving; but changing expectations in society (particularly in the

United States) of what constitutes masculine and feminine behavior can create ambiguity. Parents react differently to their male and female children. Independence, physical play, and aggressiveness are encouraged in boys; dependence, verbalization, and physical intimacy are encouraged in girls. Nowadays, however, boys are encouraged to verbalize their feelings and to pursue interests traditionally associated with girls, whereas girls are encouraged to pursue careers traditionally dominated by men and to participate in competitive sports. As society grows more tolerant in its expectations of the sexes, roles become less rigid, and opportunities for boys and girls enlarge and broaden. Biologically, boys are more physically aggressive than girls; and parental expectations, particularly the expectations of fathers, reinforce this trait. Differences also exist between boys and girls in the influence of persons outside the family. Girls tend to respond to the expectations and opinions of girls and of teachers of either sex, but to ignore boys. Boys, on the other hand, tend to respond to other boys, but to ignore girls and teachers.

**Dreams and Sleep** Children's dreams can have a profound effect on behavior. During the first year of life, when reality and fantasy are not yet fully differentiated, dreams may be experienced as if they were, or could be, true. At age 3, many children believe dreams are shared directly by more than one person, but most 4-year-olds understand that dreams are unique to each person. Children view dreams either

with pleasure or, as is most often reported, with fear. The dream content should be seen in connection with children's life experience, developmental stage, mechanisms used during dreaming, and sex. Disturbing dreams peak when children are 3, 6, and 10 years of age. Two-year-old children may dream about being bitten or chased; at the age of 4, they may have many animal dreams and also dream of persons who either protect or destroy. At age 5 or 6, dreams of being killed or injured, of flying and being in cars, and of ghosts become prominent; the role of conscience, moral values, and increasing conflicts are concerned with these themes. In early childhood, aggressive dreams rarely seem to occur; instead, dreamers are in danger, a state that perhaps reflects children's dependent position. By about the age of 5, children realize that their dreams are not real; before then, they believed them to be real events. By age 7, children know that they create their dreams themselves. Between the ages of 3 and 6 years, children normally want to keep their bedroom door open or to have a nightlight, so that they can either maintain contact with their parents or view the room in a realistic, nonfearful way. At times, children resist going to sleep to avoid dreaming. Disorders associated with falling asleep, therefore, are often connected with dreaming. Children often create rituals to protect themselves in the withdrawal from the world of reality into the world of sleep. Parasomnias, such as sleepwalking, sleep talking, enuresis (bed-wetting), and night terrors, are common at

this age. They usually occur during stage 4 sleep when dreaming is minimal, and they do not indicate emotional trouble or underlying psychopathology. Most children grow out of parasomnias by adolescence. Periods of REM occur about 60 percent of the time during the first few weeks of life, a period when infants sleep two thirds of the time. Premature babies sleep even longer than full-term babies, and a greater proportion of their sleep is REM sleep. The sleep-wake cycle of newborns is about 3 hours long. Among adults, the dream-to-sleep ratio is stable: 20 percent of sleeping time is spent dreaming. Even newborns have brain activity similar to that of the dreaming state.

**Birth Spacing** For women in the United States, 10 percent of conceptions that lead to live births are considered unwanted, and 20 percent are wanted but considered ill timed. Children born close together have higher rates of premature or underweight births, and malnutrition; they develop more slowly and are at increased risk of contracting and dying from childhood infectious diseases. Studies have shown when a child is born 3 to 5 years after a previous birth, health risks are reduced for both mother and child. Compared with 24- to 29-month intervals, children born in 36- to 41-month intervals are associated with a 28 percent reduction in stunting and a 29 percent reduction of low birth weight. Women who have children at 27- to 32-month intervals are 1.3 times more likely to avoid anemia, 1.7 times more likely to avoid third-trimester bleeding, and 2.5 times more likely to survive childbirth.

**Birth Order** The effects of birth order vary. Firstborn children are often more highly valued and given more attention than subsequent children. Firstborn children appear to be more achievement oriented and motivated to please their parents than subsequent children born to the same parents. Some studies show that people in certain competitive occupational areas, such as architecture, accounting, and engineering, tend to be firstborn children. Second and third children have the advantage of their parents' previous experience. Younger children also learn from their older siblings. For example, they may show more sophisticated use of pronouns at an earlier age than firstborns did. When children are spaced too closely, however, there may not be enough time for each child. The arrival of new children in the family affects not only the parents but also the siblings. Firstborn children may resent the birth of a new sibling, who threatens their sole claim on parental attention. In some cases, regressive behavior, such as enuresis or thumbsucking, occurs. According to Frank Sulloway, firstborn children

tend to be conservative and conformists; by contrast, youngest children tend to be independent and rebellious in regard to family and cultural norms. Sulloway found that a high proportion of prominent persons were lastborn children. He ascribes these differences to birth order

and suggests that each child develops personality traits to fit an unfilled slot in the family. His findings need to be replicated.

### Children and Divorce

Many children live in homes in which divorce has occurred. Approximately 30 to 50 percent of all children in the United States live in homes in which one parent (usually the mother) is the sole head of the household, and 61 percent of all children born in any given year can expect to live with only one parent before they reach the age of 18 years. A child's age at the time of the parents' divorce affects the child's reaction to the divorce. Immediately after a divorce, an increase in behavioral and emotional disorders appears in all age groups. Infants do not understand anything about separation or divorce; however, they do notice changes in their parents' responses to them and may experience changes in their eating or sleeping patterns; have bowel problems; and seem more fretful, fearful, or anxious. Children 3- to 6-years of age may not understand what is happening, and those who do understand often assume that they are somehow responsible for the divorce. Older children, especially adolescents, comprehend the situation and may believe that they could have prevented the divorce had they intervened in some way, but they are still hurt, angry, and critical of their parents' behavior. Some children harbor the fantasy that their parents will be reunited in the future. Such children may show animosity toward a parent's real or potential new mate because they are faced with the reality that reconciliation between their parents is not taking place. Adaptation to the effects of divorce in children typically takes several years; however, up to about one third of children from divorced homes may have lasting psychological trauma. Among boys, physical aggression is a common sign of distress. Adolescents tend to spend more time away from the parental home after the divorce. Children who adapt best to divorce are typically in a situation in which both parents make genuine efforts to spend time and relate to the child despite the child's potential anger about the divorce. To facilitate adaptation in children, a divorced couple who are amicable, and avoid arguing with one another is most likely to succeed. Table 31.1-9 lists potential psychological effects of divorce on children. Table 31.1-9 Effects of Divorce on Children

### Stepparents.

Although there are many different scenarios that may occur after a divorce and remarriage, several potential scenarios have been outlined in Table 31.1-10. These include: (1) Neo-traditional, (2) Romantic, and (3) Patriarchal. When remarriage occurs, children must learn to adapt to the stepparent and to the "blended" family. Adaptation is often challenging, especially when a child feels that a stepparent is nonsupportive, resents the stepchild, or favors his or her own natural children. Of stepfamilies, 25 percent tend to dissolve within the first 2 years, whereas 75 percent grow to find a new balance in their blended family. A biological child born to a new couple with a stepchild already in the home may receive more attention than the stepchild, leading to sibling rivalry. After 5 years, about 20 percent of adolescents in step-families suggest that they move out and try living with their other biological parent. Table 31.1-10 Types of Step-Families

### Family Factors in Child Development

#### Family Stability.

Parents and children living under the same roof in harmonious interaction is the expected cultural norm in Western society. Within this framework, childhood development presumably proceeds most expeditiously. Deviations from the norm, such as divorced- and single-parent families, are associated with a broad range of problems

in children, including low self-esteem, increased risk of child abuse, and increased incidence of divorce when they eventually marry, and increased incidence of mental disorders, particularly depressive disorders and antisocial personality disorder as adults. Why some children from unstable homes are less affected than others (or even immune to these deleterious effects) is of great interest. Michael Rutter has postulated that vulnerability is influenced by sex (boys are more affected than girls), age (older children are less vulnerable than younger ones), and inborn personality characteristics. For example, children who have a placid temperament are less likely to be victims of abuse within a family than are hyperactive children; by virtue of their placidity, they may be less affected by the emotional turmoil surrounding them. Adverse Events. It is now well known that significant adverse events, especially in early childhood such as sexual and physical abuse, neglect, or loss of a parent, interact with genetic background in a given child and influences the trajectory of development. For example, as mentioned earlier early severe maltreatment such as sexual abuse increases the risk of multiple psychosocial difficulties and emergence of many psychiatric disorders. Among young maltreated children, those with particular genetics, that is, who have the "short" variant of the serotonin transporter gene (short 5-HTTLPR polymorphism) are significantly more vulnerable to chronic depression in adulthood. This example of specific gene-environment interaction plays an important role in a child's development as well as in the risk for future psychopathology. Current investigations are also seeking insight into what factors lead to resilience in youth who have been exposed to adverse events, yet maintain allostasis, that is, stability in the face of stressful events. Hormones of the adrenal glands, thyroid, gonads, as well as

metabolic hormones play a role on the brain's ability to maintain stability upon exposure to stress, and the prefrontal cortex, hippocampus, and amygdala play critical roles in regulating emotionality, aggression, and resilience. Day Care Centers. The role of day care centers for children is under continuous investigation, and various studies have produced different results. One study found that children placed in day care centers before the age of 5 are less assertive and less effectively toilet trained than home-reared children. Another study found children in day care to be more advanced in social and cognitive development than children who were not in day care. The National Institute of Child Health and Human Development reported that 4½ year olds who had spent more than 30 hours a week in child care were more demanding, more aggressive, and more noncompliant than those raised at home and showed higher cognitive skills, particularly in math and reading. These same children who were tracked through the third grade continued to score higher in math and reading skills but had poorer work habits and social skills. The researchers were careful to note that this behavior was within the normal range, however. All studies of day care must take into account the quality of both the day care center and the homes from which children come. For example, a child from a disadvantaged home may be better off at a day care center than a child from an advantaged home. Similarly, a woman who wishes to leave the home to work for financial or other reasons and cannot do so may resent being forced to remain in the home in a child-rearing role, which may adversely affect the child. Parenting Styles. The ways in which children are raised vary considerably between and within cultures. Rutter has clustered the diversity into four general styles. Subsequent research has confirmed that certain styles tend to correlate with certain behavior in the children, although the outcomes are by no means absolute. The authoritarian style, characterized by strict, inflexible rules, can lead to low self-esteem, unhappiness, and social withdrawal. The indulgent-permissive style, which includes little or no limit setting coupled with unpredictable parental harshness, can lead to low self-reliance, poor impulse control, and

aggression. The indulgent-neglectful style, one of noninvolvement in the child's life and rearing, puts the child at risk for low self-esteem, impaired self-control, and increased aggression. The authoritative-reciprocal style, marked by firm rules and shared decision-making in a warm, loving environment, is believed to be the style most likely to result in self-reliance, self-esteem, and a sense of social responsibility. Development and Expression of Psychopathology The expression of psychopathology in children can be related to both age and developmental level. Specific developmental disorders, particularly developmental language disorders, often are diagnosed in the preschool years. Delayed development of language is a common parental concern. Children who do not use words by 18 months

or phrases by 2½ to 3 years may need assessment, particularly if they do not appear to understand normal verbal cues or much language at all. Mild mental retardation or specific learning problems often are not diagnosed until after the child begins elementary school. Disruptive behavior disorder will become apparent at that time as the child begins to interact with peers. Similarly, attention-deficit disorders are only diagnosed when the demands for sustained attention are made in school. Other conditions, particularly schizophrenia and bipolar disorder, are rare in preschool and school-aged children. ADOLESCENCE Adolescence, marked by the physiological signs and surging sexual hormones of puberty, is the period of maturation between childhood and adulthood. Adolescence is a transitional period in which peer relationships deepen, autonomy in decision-making grows, and intellectual pursuits and social belonging are sought. Adolescence is largely a time of exploration and making choices, a gradual process of working toward an integrated concept of self. Adolescents can best be described as "works in progress," characterized by increasing ability for mastery over complex challenges of academic, interpersonal, and emotional tasks, while searching for new interests, talents, and social identities. A body of growing literature of the specific mechanisms of brain development in adolescence has increased our understanding of broadening social skills in adolescents, in addition to the three expected developmental changes in adolescence: increased risk taking, increased sexual behavior, and a move toward peer affiliation rather than primary family attachment. The total cortical gray matter is at its peak at about age 11 years in girls and 13 years in boys, which enhances the ability to understand subtle social situations, control impulses, make long range plans, and think ahead. White matter volume increases throughout childhood and adolescence, which may allow for increased "connectivity," thereby enhancing the abilities of adolescents to acquire new competencies, such as those needed to master today's technology. What is Normal Adolescence? The concept of normality in adolescent development refers to the degree of psychological adaptation that is achieved while navigating the hurdles and meeting the milestones characteristic of this period of growth. For up to approximately 75 percent of youth, adolescence is a period of successful adaptation to physical, cognitive, and emotional changes, largely continuous with their previous functioning. Psychological maladjustment, self-loathing, disturbance of conduct, substance abuse, affective disorders, and other impairing psychiatric disorders emerge in approximately 20 percent of the adolescent population. Adolescent adjustment is continuous with previous psychological function; thus, psychologically disturbed children are at greater risk for psychiatric disorders during adolescence. Adolescents with psychiatric disorders are at increased risk for greater conflicts with families and for feeling alienated from their families. Although up to 60

percent of adolescents endorse occasional distress, or a psychiatric symptom, this group of adolescents functions well academically and with peers and describes themselves as generally

satisfied with their lives. The developmentalist Erik Erikson characterizes the normative task of adolescence as identity versus role confusion. The integration of past experiences with current changes takes place in what Erikson terms ego identity. Adolescents explore various aspects of their psychological selves by becoming fans of heroes, or other well-known musical or political idols. Some adolescents appear consumed by their identification with a particular idol, whereas others are more moderate in their expression. Adolescents who feel accepted by a peer group and are involved in a variety of activities are less likely to become consumed by adoration of an idol. Adolescents who are socially isolated, feel socially rejected, and become overly identified with an idol to the exclusion of all other activities are at greater risk for serious emotional problems and require psychiatric intervention. Erickson uses the term moratorium to describe that interim period between the concrete thinking of childhood and a more evolved complex ethical development. Erikson defines identity crisis as a normative part of adolescence in which adolescents pursue alternative behaviors and styles and, then, successfully mold these different experiences into a solid identity. A failure to do so would result in identity diffusion, or role confusion, in which the adolescent lacks a cohesive or confident sense of identity. Adolescence is the time to bond with peers, experiment with new beliefs and styles, fall in love for the first time, and explore creative ideas for future endeavors. Most adolescents go through this developmental process with optimism, develop good self-esteem, maintain good peer relationships, and sustain basically harmonious relationships with their families.

#### Stages of Adolescence

##### Early Adolescence

Early adolescence, from 12 to 14 years of age, is the period in which the most striking initial changes are noticed—physically, attitudinally, and behaviorally. Growth spurts often begin in these years for boys, whereas girls may have already had rapid growth for 1 to 2 years. At this stage, boys and girls begin to criticize usual family habits, insist on spending time with peers with less supervision, have a greater awareness of style and appearance, and may question previously accepted family values. A new awareness of sexuality may be displayed by increased modesty and embarrassment with their current physical development or may exhibit itself in an increased interest in the opposite sex. Early adolescents engage in subtle or overt displays of their growing desire for autonomy, sometimes with challenging behaviors toward authority figures, including teachers and school administrators, and exhibit disdain for rules themselves. At this age, some adolescents begin to experiment with cigarettes, alcohol, and marijuana. During early adolescence, there is normal variation in when new defining behaviors are acquired. Overall, although many early adolescents make new friends and modify

their public image, most maintain positive connections to family members, old friends, and their family's values. However, early adolescence has been viewed as a time of overwhelming turmoil, during which there is a dramatic rejection of family, friends, and lifestyle, resulting in a powerful alienation of the adolescent. Jake, a 13-year-old adolescent, had just started the 8th grade. In the past, he has been a jovial, fun-loving, and cooperative student, but this year he found the school rules increasingly irritating and felt that his teachers were too strict. He had always been a good student while putting in a minimum of work. His older brother Sean, now in 11th grade, had established himself as a compliant, well-liked, and well-behaved student who always put maximal effort into school projects in the same school, so Jake was compared with his brother on a regular basis by many teachers. Jake resented these comparisons because, unlike his brother, whom Jake felt was a "nerd," Jake was more rebellious, took more risks, and made friends with more popular peers. To distinguish himself from his older brother in school and at home, Jake began to challenge the rules at school, stating that they were "stupid" and "meaningless." Jake began to cut classes,

to stay out late, and to experiment with alcohol and marijuana. He rejected his best friends from 6th and 7th grade, and began to hang out with peers who were more daring. When Jake was at home, he was able to relate to his older brother Sean only when they played basketball and video games. Jake's grades began to deteriorate only slightly, but his parents noticed that on his report cards, his effort and behavior were rated as unsatisfactory. During the second month of school, Jake's parents received a phone call that Jake was going to be suspended due to possession of a small amount of marijuana on the school grounds during recess. During a subsequent meeting with the assistant principal and school counselor, Jake argued that the suspension was unfair because his grades were still good, and did not understand why his marijuana possession had triggered a suspension. When confronted with the fact that he had not only broken the school rules, but also violated the law, and that he was fortunate because the school did not involve the police, Jake became angry and continued to insist that he was being treated unfairly. He also blurted out that all of his teachers and his parents favored his older brother Sean, and treated him like a second-class citizen. Jake was suspended for 5 days, but the school indicated that they would report the incident to the police unless Jake and his family initiated immediate counseling. Jake begrudgingly began psychotherapy and entered into a weekly therapy group specializing in substance use, for teens. Jake's parents also sought therapy to work on becoming more unified in their parenting. Jake remained in psychotherapy for the next 1½ years, during which time his attitude and reasoning style changed and evolved considerably. At age 15, Jake was able to understand why his school had suspended him for possession of marijuana and came to appreciate their willingness to give him the chance to seek counseling, rather than be turned over to the police. Over time, Jake was able to admit the dangers of using drugs, and took responsibility

for his ill-advised behaviors. Alcohol and drug use continued to be a focus of his therapy and, by 15, Jake had virtually lost interest in alcohol, and admitted to smoking marijuana rarely at parties. Jake became more open to making friends with a variety of peers, and he disclosed that he liked himself better now than when he was 13. He now treated his brother respectfully when alone or with friends, and he felt that his parents appreciated him for "who he was." (Courtesy of Caroly S. Pataki, M.D.). Middle Adolescence. During the middle phase of adolescence (roughly between the ages of 14 and 16), adolescents' lifestyles may reflect their efforts to pursue their own stated goals of being independent. Their abilities to combine abstract reasoning with realistic decision-making and the application of social judgment is put to the test in this phase of adolescent development. In this phase, sexual behavior intensifies, making romantic relationships more complicated, and self-esteem becomes a pivotal influence on positive and negative risk-taking behaviors. In this phase of development, adolescents tend to identify with a group of peers who become highly influential in their choices of activities, styles, music, idols, and role models. Adolescents' underestimation of the risks associated with a variety of recreational behaviors and their sense of "omnipotence," mixed with their drive to be autonomous, frequently cause some conflict with parental requests and expectations. For most teens, the process of defining themselves as unique and different from their families can be achieved while still maintaining alliances with family members. Jenna, a 16-year-old junior in high school, had just gotten her driver's license. She realized that she was lucky to have been given a brand new car at 16, because many of her friends did not yet have cars, she was upset that her parents disapproved of her agreement to drive all of her friends to places that she did not even want to go. Jenna was an attractive and well-liked adolescent who had always been an "A" and "B" student, and she and her family had never had conflicts about school. She played the flute in the school's orchestra, and was not involved in any team sports. Jenna started "going out"

with a boy in her grade at school, Brett, who was also 16 years old, shortly after she got her license, and even though they didn't know each other that well, she felt that they had a close relationship. Since he did not yet have a car, she was the "identified driver" whenever they went out or to parties. Jenna was glad about this, because she didn't really like alcohol and was relieved that Brett would not be driving, given that he like to drink quite a bit at parties. Jenna got along fairly well with her parents, who were considered very "easy-going" by her friends, and she felt that she and her parents had similar values and ideas. Things were going well until Brett began to pressure her to go further in their sexual relationship. When Jenna told him that she wasn't ready, Brett hounded her more. When the subject of sex had come up with her parents "hypothetically" in the

past, they had dismissed the subject, indicating that when it was the right time for her, Jenna would know. Jenna knew that she was not ready to have sex, although many of her classmates were sexually active. Jenna was not an impulsive person and liked to plan things carefully so that they would feel right to her. Jenna realized that she could not agree with Brett's request but she was confident that she could make him understand. One of Jenna's friends suggested that Brett might break up with her if she didn't have sex with him, but Jenna was willing to take that risk. Jenna carefully told Brett that she loved him but she was not yet ready for sex. Jenna was slightly surprised that instead of pressuring her more, or breaking up with her, Brett accepted her decision, in fact, he seemed a little relieved. Jenna and Brett continued their relationship into their senior year of high school, and, toward the end of her senior year, Jenna desired to be sexually active with him. They decided to go to a community clinic known for its positive attitude toward adolescents, to learn about birth control methods and pick one, without the including their parents. Jenna and Brett took the time to learn about a variety of birth control methods and chose to use condoms. When they left the clinic, Jenna and Brett felt closer than they had before, and realized how they had both grown in their relationship. Jenna and Brett both felt that they were doing the right thing. (Courtesy of Caroly S. Pataki, M.D.). Late Adolescence. Late adolescence (between the ages of 17 and 19) is a time when continued exploration of academic pursuits, musical and artistic tastes, athletic participation, and social bonds lead a teen toward greater definition of self and a sense of belonging to certain groups or subcultures within mainstream society. Well-adjusted adolescents can be comfortable with current choices of activities, tastes, hobbies, and friendships, yet remain aware that their "identities" will continue to be refined during young adulthood. Joey was in his second semester of his freshman year of college, living away from home, and had just turned 18 years of age. He reflected on the fact that he was no longer a "minor" and could make almost any decision for himself without his parents being involved. Joey felt liberated, but at the same time, he was confused and a little lost. Since 10th grade, Joey had planned to pursue a career in medicine like his father, so he had taken a heavy load of science courses in the first semester, all of which he had despised. This semester, however, he had signed up only for liberal arts classes. He did not mention this to his father. He was now enrolled in classes that ranged from art history to architectural drafting to sociology, philosophy, and music. He had been influenced, he believed, by his roommate Tony, who was in the architecture program, and by his girlfriend, Lisa, who was majoring in studio art. As the semester progressed, Joey found that his favorite course was the drafting

class, just like Tony had predicted. Tony was in a more advanced drafting class than Joey, and Joey couldn't help but wonder whether he liked the drafting class so much because of how much he

idolized Tony, or because he really enjoyed the class. He talked this over with Lisa, who suggested that he chill out and not figure out the rest of his life right now. She recommended that he take at least two more semesters of varied classes including those in the architecture curriculum before making a final decision about a career. Joey realized that Lisa's approach to college, and to life was so relaxed, the opposite of his approach, following his parents' pressure to plan ahead, make commitments early, and see them through, regardless of how it felt. Lisa's approach left more room for reflecting on experiences, and then making a choice, rather than jumping into what he was "supposed" to do. Joey took her advice and allowed himself another year to try out majors and then decide on a career. After experiencing courses in many varied subjects, Joey decided that he did truly enjoy architecture and was able to switch his focus from premed to architecture.

(Courtesy of Caroly S. Pataki M.D.) Components of Adolescence Physical Development. Puberty is the process by which adolescents develop physical and sexual maturity, along with reproductive ability. The first signs of the pubertal process are an increased rate of growth in both height and weight. This process begins in girls by approximately 10 years of age. By the age of 11 or 12, many girls noticeably tower over their male classmates, who do not experience a growth spurt, on average, until they reach 13 years of age. By age 13, many girls have experienced menarche, and most have developed breasts and pubic hair. Wide variation exists in the normal range of onset and timing of pubertal development and its components. A set sequence occurs, however, in the order in which pubertal development proceeds. Thus, secondary sexual characteristics in boys, such as increased length and width of the penis, for example, will occur after the release of androgens from developed enlarged testes. Sexual maturity ratings (SMR), also referred to as Tanner Stages, range from SMR 1 (prepuberty) to SMR 5 (adult). The SMR ratings include stages of genital maturity in boys and breast development in girls, as well as pubic hair development. Table 31.1-11 outlines sexual maturity ratings for boys and girls. Table 31.1-11 Sexual Maturity Ratings for Male and Female Adolescents

The primary female sex characteristic is ovulation, the release of eggs from ovarian follicles, approximately once every 28 days. When adolescent girls reach SMR 3 to 4, ovarian follicles are producing enough estrogen to result in menarche, the onset of menstruation. When adolescent girls reach SMR 4 to 5, an ovarian follicle matures on a monthly basis and ovulation occurs. Estrogen and progesterone promote sexual maturation, including further development of fallopian tubes and breasts. For adolescent boys, the primary sex characteristic is the development of sperm by the testes. In boys, sperm development occurs in response to follicle-stimulating hormone acting on the seminiferous tubules within the testes. The pubertal process in boys is marked by the growth of the testes stimulated by luteinizing hormone. An adolescent boy's ability to ejaculate generally emerges within 1 year of reaching SMR 2. Secondary sexual characteristics in boys include thickening of skin, broadening of the shoulders, and the development of facial hair.

Cognitive Maturation. Cognitive maturation in adolescence encompasses a wide range of expanded abilities that fall within the global category of executive functions of the brain. These include the transition from concrete thinking to more abstract thinking; an increased ability to draw logical conclusions in scientific pursuits, with peer interactions and in social situations; and new abilities for self-observation and selfregulation. Adolescents acquire increased awareness of their own intellectual, artistic, and athletic gifts and talents; yet it often takes many more years into young adulthood to establish a practical application for these abilities. The central cognitive change that occurs gradually during adolescence is the shift from concrete thinking (concrete operational thinking, according to Jean Piaget) to the ability to think abstractly (formal operational thinking, in

Piaget's terminology). This evolution occurs as an adaptation to stimuli that demand an adolescent to produce hypothetical responses, as well as in response to the adolescent's expanded abilities to provide generalizations from specific situations. The development of abstract thinking is not a sudden epiphany but, rather, a gradual process of expanding logical deductions beyond concrete experiences and achieving the capacity for idealistic and hypothetical

thinking based on everyday life. Adolescents often use an omnipotent belief system that reinforces their sense of immunity from danger, even when confronted with logical risks. Some degree of childlike magical thinking continues to coexist with more mature abstract thinking in many adolescents. Despite the persistence of magical thinking into adolescence, adolescent cognition departs from that of younger children insofar as the increased ability for self-observation and development of strategies to promote strengths and compensate for weaknesses. One of the important cognitive tasks in adolescence is to identify and gravitate toward those pursuits that seem to match the adolescent's cognitive strengths, in academic courses and in thinking about future aspirations. Piaget believed that cognitive adaptation in adolescence is profoundly influenced by social relationships and the dialogue between adolescents and peers, making social cognition an integral part of cognitive development in adolescence. Socialization. Socialization in adolescence encompasses the ability to find acceptance in peer relationships, as well as the development of more mature social cognition. The skills to develop a sense of belonging to a peer group are of central importance to a sense of well-being. Being viewed as socially competent by peers is a critical component in building good self-esteem for most early adolescents. Peer influences are powerful and can foster positive social interactions, as well as apply pressure in less socially accepted behaviors or even high-risk behavior. Belonging to a peer group is, in general, a sign of adaptation and a developmentally appropriate step in separating from parents and turning the focus of loyalty toward friends. Children between the ages of 6 and 12 are able to engage in exchanges of ideas and opinions and acknowledge feelings of peers, but the relationships often wax and wane in a discontinuous way on the basis of altercations and good times. Friendships deepen with repeated good times but, for some school-aged children, a variety of peers are often interchangeable—that is, a companion is sought when a given child has free time, rather than out of a desire to spend time with a specific friend. As adolescence ensues, friendships become more individualized, and personal secrets are likely shared with a friend rather than a family member. A comfort level is achieved with one or several early adolescent peers, and the group may “stick together,” spending most free time together. In early adolescence, a blend of the above two social modes may emerge, small “cliques” arise, and, even within the cliques, competition and jealousies regarding which dyads are “preferred” or higher ranked within the clique may result in some discontinuities in the relationships. In later adolescence, the peer group solidifies, leading to increased stability in the friendships and a greater mutuality in the quality of the interactions. Moral Development. Morality is a set of values and beliefs about codes of behavior that conform to those shared by others in society. Adolescents, as do younger children, tend to develop patterns of behaviors characteristic of their family and

educational environments and by imitation of specific peers and adults whom they admire. Moral development is not strictly tied to chronological age but, rather, is an outgrowth from cognitive development. Piaget described moral development as a gradual process parallel to cognitive development, with expanded abilities in differentiating the best interests for society from those of individuals occurring during late adolescence. Preschool children simply follow rules set forth by

the parents; in the middle years, children accept rules but show an inability to allow for exceptions; and during adolescence, young persons recognize rules in terms of what is good for the society at large. Lawrence Kohlberg integrated Piaget's concepts and described three major levels of morality. The first level is pre-conventional morality, in which punishment and obedience to the parent are the determining factors. The second level is morality of conventional role-conformity, in which children try to conform to gain approval and to maintain good relationships with others. The third and highest level is morality of self-accepted moral principles, in which children voluntarily comply with rules on the basis of a concept of ethical principles and make exceptions to rules in certain circumstances. Although Kohlberg's and Piaget's notions of moral development focus on a unified theory of cognitive maturation for both sexes, Carol Gilligan emphasizes the social context of moral development leading to divergent patterns in moral development. Gilligan points out that, in women, compassion and the ethics of caring are dominant features of moral decision-making, whereas, for men, predominant features of moral judgments are related more to a perception of justice, rationality, and a sense of fairness. Self-Esteem. Self-esteem is a measure of one's sense of self-worth based on perceived success and achievements, as well as a perception of how much one is valued by peers, family members, teachers, and society in general. The most important correlates of good self-esteem are one's perception of positive physical appearance and high value to peers and family. Secondary features of self-esteem relate to academic achievement, athletic abilities, and special talents. Adolescent self-esteem is mediated, to a significant degree, by positive feedback received from a peer group and family members, and adolescents often seek out a peer group that offers acceptance, regardless of negative behaviors associated with that group. Adolescent girls have more of a problem maintaining self-esteem than do boys. Girls continued to rate themselves with generally lower self-esteem into adulthood. Current Environmental Influences and Adolescence Adolescent Sexual Behavior. Sexual experimentation in adolescents often begins with fantasy and masturbation in early adolescence followed by noncoital genital touching with the opposite sex or, in some cases, same-sex partners, oral sex with partners, and initiation of sexual intercourse at a later point in development. By high school, most male adolescents report experience with masturbation, and more than half

of adolescent girls report masturbation. The balance between healthy adolescent sexual experimentation and emotionally and physically safe sexual practices is one of the major challenges for society. Estimates vary, but about 50 percent of 9th to 12th grade students reported having had sexual intercourse. The median age at first intercourse is about 16 years for boys and 17 years for girls. Boys generally have more sexual partners than do girls, and boys are less likely than girls to seek emotional attachments with their sexual partners. FACTORS INFLUENCING ADOLESCENT SEXUAL BEHAVIOR. Factors that affect sexual behavior in adolescents include personality traits, gender, cultural and religious background, racial factors, family attitudes, and sexual education and prevention programs. Personality factors have been found to be associated with sexual behavior, as well as sexual risk-taking. Higher levels of impulsivity are associated with a younger age at first experience of sexual intercourse; higher number of sexual partners; sexual intercourse without the use of contraception, including condoms; and a history of sexually transmitted disease (chlamydia). Historically, male adolescents have initiated sexual intercourse at a younger age than female adolescents. The younger a teenage girl is when she has sex for the first time, the more likely she is to have had unwanted sexual activity. Close to four of ten girls who had first intercourse at 13 or 14 years of age report it was either not voluntary or unwanted. Three of four girls and over half of boys report that girls who have sex do so because their boyfriends

want them to. In general, adolescents who initiate sexual intercourse at younger ages are also more likely to have a greater number of sexual partners. The additive effects of more highly educated families, social and religious youth groups, and school-based educational programs can be credited with a decline in high-risk sexual behavior among adolescents. Responsible sexual behavior among adolescents has been determined as one of the ten leading health indicators for the next decade. The primary reason that teenage girls who have never had intercourse give for abstaining from sex is that having sex would be against their religious or moral values. Other reasons include desire to avoid pregnancy, fear of contracting a sexually transmitted disease (STD), and not having met the appropriate partner.

**CONTRACEPTIVES.** Currently, 98 percent of teenagers 15 to 19 years are using at least one method of birth control. The two most common methods are condoms and birth control pills. STDs, despite use of condoms, are still at high levels in teens. Approximately one in four sexually active teens contracts an STD every year. Approximately half of all new human immunodeficiency virus (HIV) infections occur in people younger than age 25.

**PREGNANCY.** Each year 750,000 to 850,000 teenage girls younger than age 19 become pregnant. Of this number, 432,000 give birth, a 19 percent decline from 532,000 in 1991; the rest (418,000) obtain abortions. The largest decline in teen pregnancy by race is for black women. Hispanic teen births have declined 20 percent, but continue to have the highest teen birth rates compared with other races.

Teenage pregnancy creates a plethora of health risks for both mother and child. Children born to teenage mothers have a greater chance of dying before the age of 5 years. Those who survive are more likely to perform poorly in school and are at greater risk of abuse and neglect. Teenage mothers are less likely to gain adequate weight during pregnancy, increasing the risk of premature births and low-birth-weight infants. Low-birth-weight babies are more likely to have organs that are not fully developed, resulting in bleeding in the brain, respiratory distress syndrome, and intestinal problems. Teenage mothers are also less likely to seek regular prenatal care and to take recommended daily multivitamins, and they are more likely to smoke, drink, or use drugs during pregnancy. Only one third of teenage mothers obtain high school diplomas, and only 1.5 percent have a college degree by the age of 30. The average adolescent mother who cannot care for her child has the child either placed in foster care or raised by the teenager's already overburdened parents or other relatives. Few teenage mothers marry the fathers of their children; the fathers, usually teenagers, cannot care for themselves, much less the mothers of their children. If the two do marry, they usually divorce. Many are more likely to end up on welfare.

**ABORTION.** Nearly four of ten teen pregnancies end in abortion. Almost all the girls are unwed mothers from low socioeconomic groups; their pregnancies result from sex with boys to whom they felt emotionally attached. Most (61 percent) teenagers elect to have abortions with their parents' consent, but laws of mandatory parental consent put two rights into competition: a girl's claim to privacy and a parent's need to know. Most adults believe that teenagers should have parental permission for an abortion; but when parents refuse to give their consent, most states prohibit parents from vetoing the teenager's decision. The abortion rate in many European countries tends to be far lower than that in the United States. In the United States, the rate of abortion among girls between the ages of 15 and 19 is about 30 per 1,000 girls, according to the Centers for Disease Control and Prevention. In France, for instance, about 10.5 of every 1,000 girls under the age of 20 had an abortion, according to World Health Organization statistics. The rate of abortion in Germany was 6.8; in Italy, 6.3; and in Spain, 4.5. Britain has a higher rate, 18.5. Family planning experts believe that more sex education and availability of contraceptive devices help keep the number of abortions down. In

Holland, where contraceptives are freely available in schools, the teenage pregnancy rate is among the lowest in the world. Risk-Taking Behavior. Reasonable risk-taking is a necessary endeavor in adolescence, leading to confidence both in forming new relationships and in sports and social situations. High-risk behaviors among adolescents are associated with serious negative consequences, however, and can take many forms, including drug and alcohol use, unsafe sexual practices, self-injurious behaviors, and reckless driving. Drug Use

ALCOHOL. About 30 percent of 12th graders report having five or more drinks in a row within a 2-week period. The average age when youths first try alcohol is 11 years for boys and 13 years for girls. The national average age at which Americans begin drinking regularly is 15.9 years of age. People ages 18 to 25 show the highest prevalence of binge and heavy drinking. Drunk driving has declined since 2002. Alcohol dependence, along with other drugs, is associated with depression, anxiety, oppositional defiant disorder, antisocial personality disorder, and an increased rate of suicide. NICOTINE. The number of younger Americans who smoke has declined since 1990; however, the rate of smoking among teenagers is still as high as or higher than that of adults. According to the American Cancer Society, on average more than one of five students has smoked cigarettes. Each day, more than 4,000 teenagers try their first cigarette and another 2,000 become regular, daily smokers. Cigarette smokers are more likely to get into fights, carry weapons, attempt suicide, suffer from mental health problems such as depression, and engage in high-risk sexual behaviors. One of three will eventually die from smoking-related diseases. Cigarettes are the most common type of tobacco used among middle-school students followed by cigars, smokeless tobacco, and pipes. CANNABIS. Marijuana is the most popular illicit drug, with 14.6 million people using it (6.2 percent of the population), two thirds being under the age of 18. Its use, however, is slowly declining. About 6 percent of 12th graders report daily use of marijuana. One of the major reasons for such prevalence of marijuana use among teenagers is because many find that marijuana is easier to get than alcohol or cigarettes. This belief has declined in recent years. Once teenagers are dependent on marijuana, they often tumble into truancy, crime, and depression. COCAINE. About 13 percent of high school seniors use cocaine, exceeding the national average of 3.6 percent. In addition, about 1 percent of 12th graders admit to using phencyclidine (PCP). Crystal methamphetamine (ice) has an annual prevalence in 12th graders of about 2 percent. OPIOIDS. In recent years, the number of teens using prescription pain relievers for nonmedical reasons has increased. Prescription drug abuse by people ages 18 to 25 has increased 15 percent. Drugs of specific concern are the pain relievers oxycodone (OxyContin) and hydrocodone (Vicodin). OxyContin has gained ground among high school students since its emergence in 2001, with 5 percent of 12th graders, 3.5 percent of 10th graders, and 1.7 percent of 8th graders reporting use. Vicodin was used by 9.3 percent of 12th graders, 6.2 percent of 10th graders, and 2.5 percent of 8th graders. HEROIN. Heroin use is prevalent among adolescents, although less so than cocaine. The average age of use is 19, but it is used by almost 2 percent of 12th graders, the nasal route (snorting) being the most common method of use.

Violence. Although rates of violent crime have decreased throughout the United States in recent years, violent crimes by young offenders are on the increase. Homicides are the second leading cause of death among persons ages 15 to 25. (Accidents are first; suicides are third.) Black male teenagers are far more likely to be murder victims than are boys from any other racial or ethnic group or girls of any race. The factor most strongly associated with violence among adolescent boys is growing up in a household without a father or father surrogate; this factor aside, race,

socioeconomic status, and education show no effect on the propensity toward violence. **BULLYING.** Bullying is defined as the use of one's strength or status to intimidate, injure, or humiliate another person of lesser strength or status. It can be categorized as physical, verbal, or social. Physical bullying involves physical injury or threat of injury to someone. Verbal bullying refers to teasing or insulting someone. Social bullying refers to the use of peer rejection or exclusion to humiliate or isolate a victim. Approximately 30 percent of 6th through 10th grade students are involved in some aspect of moderate-to-frequent bullying, either as a bully, the target of bullying, or both. Approximately 1.7 million children within this age group can be identified as bullies. Boys are more likely to be involved in bullying and violent behavior than girls. Girls tend to use verbal bullying rather than physical. An estimated 160,000 students miss school each day because of fear of attack or intimidation from peers; some are forced to drop out. Stresses of "victimization" can interfere with student's engagement and learning in school. Children who bully other children are at risk for engaging in more serious violent behaviors, such as frequent fighting and carrying a weapon. **Cyber Bullying.** During the last decade, electronic or internet bullying has become of great concern to adolescents. Cyber bullying is defined broadly, to convey the use of electronic means to intentionally intimidate or harm someone. The reported prevalence of cyber bullying is variable, reports ranging from 1% to 62% of youth reporting that they were victims of cyber victimization. A study of about 700 Australian students, recruited at age 10 years, and followed until age 14 to 15 years, found that 15% had engaged in cyber bullying, 21% had engaged in traditional bullying, and 7% had engaged in both. Another study of self-reported information collected from 399 teens in the 8th to 10th grades, found that involvement in cyber bullying, either as a victim or a bully, specifically contributed to the prediction of depressive symptoms and suicidal ideation. This correlation of cyber bullying and depressive symptomatology was found to be stronger than the association of traditional bullying and affective disorder. **Gangs.** Gang violence is a problem in various communities throughout the United States. There are 2,000 different youth gangs around the country with more than 200,000 teens and young adults as members. Most members are between the ages of 12 and 24 years, with an average of 17 to 18 years. Gang membership is a brief phase for many teenagers; one half to two thirds leave the gang by the 1-year mark. Boys are more likely to join gangs than girls; however, female gang membership may be underrepresented. Female gang members are more likely to be found in small cities and rural areas and tend to be younger than male gang members. Female gang members are also involved in less delinquent or criminal activity than males and commit fewer violent crimes. **WEAPONS.** Each day, on average, nearly ten American children younger than the age of 18 years are killed in handgun suicides, homicides, and accidents. Many more are wounded. One in five youths in grades 9 to 12 carries a weapon: knife, gun, or club. By law, firearms cannot be sold to anyone younger than the age of 18 years. Two thirds of students in grades 6 to 12 say that they can get a firearm within 24 hours, however. More than 22 million children live in a home with a firearm. In 40 percent of these homes, at least one gun is kept unlocked and 13 percent are kept unlocked and loaded. Two of three students involved in school shootings acquired their guns from their own home or that of a relative. At least 60 percent of suicide deaths in teens involve the use of a handgun. **SCHOOL VIOLENCE.** According to the CDC of all youth homicides in 2010 about 2 percent occurred in schools. Approximately 7 percent of teachers report they have been threatened with injury or physically attacked by a student from their school. In addition, among students in grades 9 through 12, about 6 percent reported carrying a weapon on school property on one or more days in the 30 days before the survey. Many factors can lead to violent acts in teenagers. Some inherited traits include

impulsivity, learning difficulties, low IQ, or fearlessness. A correlation also exists between witnessing violent acts and involvement in violence. Children who witness violent acts are more aggressive and grow up more likely to become involved in violence—either as a victimizer or as a victim. Table 31.1-12 lists some of the early and imminent warning signs of school violence. Table 31.1-12 Warning Signs of School Violence

On April 20, 1999, two teenage boys, ages 17 and 18 years, went on a shooting rampage through Columbine High School of Littleton, Colorado. Armed with shotguns, a semiautomatic rifle, and a pistol, they laughed and hollered as they shot classmates and teachers at point-blank range while hurling homemade explosives. Fifteen were killed, including the two gunmen, and 25 were injured. The gunmen were members of the “trench coat mafia” at the high school, a clique of social misfits who stood out at the school for their gothic style of dress and nihilistic attitude. The two gunmen were obsessed with violent video games and intrigued with Nazi culture, even though one was part Jewish. The date of the attack was picked because it was Adolf Hitler’s birthday. On March 21, 2005, a 16-year-old boy went on a shooting rampage at Red Lake High School on the Red Lake Indian Reservation in far northern Minnesota. He began his shooting spree by killing his grandfather and the grandfather’s companion. He then donned his grandfather’s police-issue gun belt and bulletproof vest before heading to the school, where he killed a security guard, a teacher, five students, and then himself. About 15 others were injured. The gunman had a troubled childhood; his father committed suicide in 1997 and his mother suffered head injuries in an auto accident. He expressed admiration for Adolf Hitler on a neo-Nazi website, using the handle “Todesengel,” which is German for “Angel of Death.” He had bouts of depression, suicide ideation, and was taking fluoxetine (Prozac). He was a member of a clique of about five students known as “The Darkers,” who wore black clothes and chains, spiked or dyed their hair, and loved heavy-metal music. The gunman was usually seen in a long black trench coat, eyeliner, and combat boots, and was described as a quiet teenager.

**SEXUAL OFFENSE.** Adolescents younger than age 18 years account for 20 percent of arrests for all sexual offenses (excluding prostitution), 20 to 30 percent of rape cases, 14 percent of aggravated sexual assault offenses, and 27 percent of child sexual homicides. These adolescent offenders account for the victimization of approximately one half of boys and one fourth of girls who are molested or sexually abused. Most instances have involved adolescent male perpetrators. There appear to be two types of juvenile sex offenders: those who target children and those who offend against peers or adults. The main distinction between the two groups is based on the age difference between the victim and the offender. Table 31.1-13 lists the differences and similarities of these two groups. Table 31.1-13 Juvenile Sex Offender Subtypes Etiological factors of juvenile sex offending include maltreatment experiences, exposure to pornography, substance abuse, and exposure to aggressive role models. A significant number of offending adolescents have a childhood history of physical abuse (25 to 50 percent) or sexual abuse (10 to 80 percent). Half of adolescent offenders lived with both parents and one other juvenile at the time of their offending. Evidence also

suggests that most juvenile sex offenders are likely to become adult sex offenders. The most common psychosocial deficits of adolescent sexual offenders include low self-esteem, few social skills, minimal assertive skills, and poor academic performance. The most common psychiatric diagnoses are conduct disorder, substance abuse disorder, adjustment disorder, attention-deficit/hyperactivity disorder, specific phobia, and mood disorders. Male offenders are more often

diagnosed with paraphilias and antisocial behavior, whereas female offenders are more likely to be diagnosed with mood disorders and engage in self-mutilation. Prostitution. Teenagers constitute a large portion of all prostitutes, with estimates ranging up to 1 million teenagers involved in prostitution. The average age of a new recruit is 13 years; however, some are as young as 9 years of age. Most adolescent prostitutes are girls, but boys are involved as homosexual prostitutes. Most teenagers who enter a life of prostitution come from broken homes; however, a growing number of teenage prostitutes come from middle- to upper middle-class homes. Many have been victims of rape, or were abused as children. Most teenagers ran away from home and were taken in by pimps and substance abusers; the adolescents themselves then became substance abusers. Twenty-seven percent of teenage prostitution occurs in large cities, and incidents usually take place at an outside location, such as highways, roads, alleys, fields, woods, or parking lots. Teenage prostitutes are at high risk for acquired immunodeficiency syndrome (AIDS), and many (up to 70 percent in some studies) are infected with HIV. As many as 17,500 individuals are smuggled into the United States each year as "sex slaves." They are brought under the pretenses of a better life and job opportunities, but once they are in the United States, they are forced into prostitution, making little money while traffickers make thousands of dollars from their services. Many times they are raped and abused. Tattoos and Body Piercing. Body piercing and tattoos have become more prevalent among adolescents since the 1980s. In the general population, approximately 10 to 13 percent of adolescents have tattoos. Of the more than 500 adolescents surveyed in a study, 13.2 percent report at least one tattoo, and 26.9 percent report at least one body piercing, other than in their ear lobe, at some point in their lives. Both tattoos and body piercing are more common in girls than in boys. Adolescents who endorsed possession of at least one tattoo or body piercing are more likely to endorse use of gateway drugs (cigarettes, alcohol, marijuana), as well as experience with hard drugs (cocaine, crystal methamphetamine, and ecstasy). REFERENCES Blackmore SJ. Development of the social brain in adolescence. *J R Soc Med.* 2012;105:111–116. Blair C, Raver CC. Child development in the context of adversity: Experiential canalization of brain and behavior. *Am Psychol.* 2012;67:309–318. Bonanno RA, Hymel S. Cyber bullying and internalizing difficulties: Above and beyond the impact of traditional forms of

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Revision #1

Created 2026-01-04 19:52:04 UTC by Omar Ayman

Updated 2026-01-04 19:52:04 UTC by Omar Ayman