

sound may be connected with a shape. For example, when 4-month-old infants hear words that seem more staccato—such as “kiki”—they are more likely to look at an angular shape than a round one (Ozturk et al., 2013).

The tendency of one part of the brain to activate another may also occur for emotions. An infant’s cry can be triggered by pain, fear, tiredness, surprise, or excitement; laughter can turn to tears. Infant emotions may erupt, increase, or disappear for unknown reasons (Camras & Shutter, 2010). Brain immaturity is a likely explanation.

Temperament

Temperament is defined as the “biologically based core of individual differences in style of approach and response to the environment that is stable across time and situations” (van den Akker et al., 2010, p. 485). “Biologically based” means that these traits originate with nature, not nurture. Confirmation that temperament arises from the inborn brain comes from an analysis of the tone, duration, and intensity of infant cries after the first inoculation, before much experience outside the womb. Cry variations at this very early stage correlate with later temperament (Jong et al., 2010).

Temperament is *not* the same as personality, although temperamental inclinations may lead to personality differences. Generally, personality traits (e.g., honesty and humility) are learned, whereas temperamental traits (e.g., shyness and aggression) are genetic. Of course, for every trait, nature and nurture interact.

In laboratory studies of temperament, infants are exposed to events that are frightening or attractive. Four-month-olds might see spinning mobiles or hear unusual sounds. Older babies might confront a noisy, moving robot or a clown who quickly moves close to them. During such experiences, some children laugh, some cry, others are quiet, and still others exhibit a combination of these reactions.

Generally, three dimensions of temperament are found (Hirvonen et al., 2013; van den Akker et al., 2010; Degnan et al., 2011), each of which affects later personality and achievement.

- Effortful control (regulating attention and emotion, self-soothing)
- Negative mood (fearful, angry, unhappy)
- Exuberant (active, social, not shy)

Each of these dimensions is associated with distinctive brain patterns as well as behavior, with the last of these (exuberance versus shyness) most strongly traced to genes (Wolfe et al., 2014). Of course, all temperament traits are thought to be biologically based with a genetic component, but the distinction between temperament (biology) and personality (learned) is clearer on paper than in people. Social scientists sometimes interpret the data in opposite ways, as you will now see.

OPPOSING PERSPECTIVES

Mothers or Genes?

Traditionally, as you will later read, psychologists emphasized mothers. Their actions in the early years were thought to affect their child lifelong. Many adults credit, or blame, their mothers for their success and failure.

Recently, however, genetic research and neuroscience suggest a strong role for genes and neurotransmitters, making one person fearful and another foolhardy, one person angry and another sanguine, and so on. These studies often include photos of brain scans, and statistical analysis of monozygotic

twins, leading many social scientists to be impressed by the biological basis for human differences.

Many neuroscientists seek to discover which alleles affect specific emotions. For example, researchers have found that the 7-repeat allele of the DRD4 VNTR gene, when combined with the 5-HTTLPR genotype, results in 6-month-olds who are difficult—often crying, hard to distract, slow to laugh (Holmboe et al., 2011; Windhorst et al., 2015). Infants with a particular allele of the MOA gene are reported to be

LaunchPad
Video: Temperament in Infancy and Toddlerhood
<http://qrs.ly/j44ep09>



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Stranger Danger Some parents teach their children to be respectful of any adult, others teach them to fear any stranger. No matter what their culture or parents say, each of these two sisters in Nepal reacts according to her inborn temperament.

temperament

Inborn differences between one person and another in emotions, activity, and self-regulation. It is measured by the person’s typical responses to the environment.

quick to anger (Sung et al., 2015). You need not remember the letters of these alleles, but the data have convinced almost everyone that infant emotions vary partly for genetic reasons (M. H. Johnson & Fearon, 2011).

Many other scientists trace the traits of children to aspects of early caregiving and culture. For example, the same study that noted a link between MOA and infant anger compared Dutch and American babies, and it reported that culture was a crucial influence (Sung et al., 2015). The impact of the 7-repeat allele of DRD4 depends on a mother's reaction to her difficult baby (Windhorst et al., 2015).

The most detailed, longitudinal study of temperament assessed the same individuals at 4, 9, 14, 24, and 48 months and again in middle childhood, adolescence, and adulthood. The scientists designed laboratory experiments with specifics appropriate for the age of the children; collected detailed reports from the mothers and later from the participants themselves; and gathered observational data and physiological evidence, including brain scans. Past data were reevaluated each time, and cross-sectional and international studies were considered (Fox et al., 2001, 2005, 2013; Hane et al., 2008; L. Williams et al., 2010; Jarcho et al., 2013).

Half of the participants did not change much over time, reacting the same way and having similar brain-wave patterns when confronted with frightening experiences. Curiously, the participants most likely to change from infancy to age 4 were the inhibited, fearful ones. Least likely to change were the exuberant babies (see Figure 4.1). That could be ascribed to the environment, because adults coax frightened infants to be brave but let exuberant children stay happy.

The researchers found unexpected gender differences. As teenagers, the formerly inhibited boys were *more* likely than the average adolescent to use drugs, but the inhibited girls were *less* likely to do so (L. Williams et al., 2010). Perhaps shy boys use drugs to become less anxious, but shy girls may be more fearful of authority and more accepted as they are. Is this nature (sex hormones) or nurture (social expectations)?

Examination of these participants in adulthood again found intriguing differences between brain and behavior. Those who were inhibited in childhood still showed, in brain scans, evidence of their

infant temperament. That confirms that biology affected their traits.

However, learning (specifically cognitive control) was also evident: Their outward behavior was similar to those with a more outgoing temperament, unless other factors caused serious emotional problems. Apparently, most of them had learned to override their initial temperament—not to erase social anxiety but to keep it from impairing adult behavior (Jarcho et al., 2013).

Continuity and change were also found in another study that found that angry infants were likely to make their mothers hostile toward them, and, if that happened, such infants became antisocial children. However, if the mothers were loving and patient, despite the difficult temperament of the children, hostile traits were not evident later on (Pickles et al., 2013).

The two trends evident in all these studies—continuity and improvement—have been replicated in many longitudinal studies of infant temperament, especially for antisocial personality traits. Difficult babies tend to become difficult children, but not always. Family and culture sometimes deflect negative outcomes.

The reason both opposing interpretations thrive may depend more on the person drawing the conclusions than on the babies. Some people are inclined to accept things as they are. They are likely to emphasize inborn traits that do not change. Other people believe that change is always possible, even likely. They seek ways that early caregiving, or the social context, or even the national political structure, shape behavior.

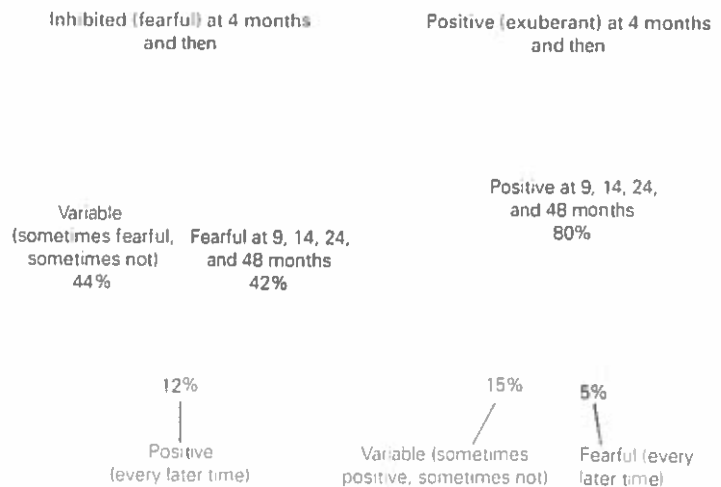
Which of these two folk sayings are you more likely to tell your friends?

A leopard cannot change his spots.

or

If at first you don't succeed, try, try again.

Changes in Temperament Between Ages 4 Months and 4 Years



Data from Fox et al., 2001

FIGURE 4.1

Sometimes it is possible—especially if they were fearful babies. Adults who are reassuring help children overcome fearfulness. If fearful children do not change, it is not known whether that's because their parents are not sufficiently reassuring (nurture) or because the babies themselves are temperamentally more fearful (nature).

WHAT HAVE YOU LEARNED?

1. What are the first emotions to appear in infants?
2. Why is it better for an infant to express anger than sadness?
3. What do 1-year-olds fear?
4. How do emotions differ between the first and second year of life?
5. How do family interactions and culture shape toddlers' emotions?
6. What evidence is there that toddlers become more aware of themselves?
7. What is known about the impact of brain maturation on emotions?
8. What is not yet known about how brain maturation affects emotions?
9. How are memory and emotion connected?
10. How does stress affect early brain development?
11. What three dimensions of temperament are evident in children?
12. What is the difference between temperament and personality?
13. Why are temperament traits more apparent in some people than others?

The Development of Social Bonds

One resounding conclusion of research in the social sciences is that humans, from the first days of life to the last, are powerfully influenced by other humans. Social bonds affect health and happiness at every age (Hazan & Campa, 2013). Evidence of this in infancy depends partly on the age of the baby. First synchrony, then attachment, and finally social referencing are apparent (see *Visualizing Development*, p. 144).

Synchrony

Ideally, early parent-child interactions are characterized by **synchrony**, a mutual exchange that requires split-second timing. Metaphors for synchrony are often musical—a waltz, a jazz duet—to emphasize that each partner must be attuned to the other, with moment-by-moment responses. Synchrony is evident in the first three months, becoming more frequent and elaborate as the infant matures (Feldman, 2007).

synchrony

A coordinated, rapid, and smooth exchange of responses between a caregiver and an infant.

Open Wide Synchrony is evident worldwide. It is not easy for parents—notice this father's neck muscles—but it is a joy for both partners. Everywhere babies watch their parents carefully, hoping for exactly what these two parents—each from quite different cultures—express, and responding with such delight that adults relish these moments.





Tell Me More No observer could doubt that babies are active, responsive, social creatures long before they can walk and talk.

THINK CRITICALLY: What will happen if no one plays with an infant?

still-face technique

An experimental practice in which an adult keeps his or her face unmoving and expressionless in face-to-face interaction with an infant.

BOTH PARTNERS ACTIVE Direct observation reveals synchrony. Anyone can see it when watching a caregiver play with an infant who is too young to talk. It is also evident in computer measurement of the millisecond timing of smiles, arched eyebrows, and so on (Messinger et al., 2010). Synchrony is a powerful learning experience for the new human. Infants read others' emotions and develop social skills, taking turns and watching expressions.

Thus, long before they can reach out and grab, infants respond excitedly to caregiver attention by waving their arms. They are delighted if the adult moves closer so that a waving arm can touch the face or, even better, a hand can grab hair. You read about this eagerness for interaction (when infants try to "make interesting events last") in Chapter 3.

In response, adults open their eyes wide, raise their eyebrows, smack their lips, and emit nonsense sounds. Hair-grabbing might make adults bob their head back and forth, in a playful attempt to shake off the grab, to the infants' delight, or might cause a sudden angry expression, with a loud "No" making the infant burst into tears. Even that is better than no response at all.

Synchrony usually begins with adults imitating infants (not vice versa), with tone and rhythm (Van Puyvelde et al., 2010). Adults respond to barely perceptible infant facial expressions and body motions. This helps infants connect their internal state with behaviors that are understood within their culture.

Ideally, parents and infants become partners. This relationship is crucial when the infant is at medical risk. The necessity of time-consuming physical care might overwhelm concern about psychosocial needs, yet those needs are as important for long-term health as are the biological ones (Newnham et al., 2009). Responsiveness to the individual, not simply to the impaired human, leads to a strong, mutual love between parents and child (Solomon, 2012).

- **NEGLECTED SYNCHRONY** In the **still-face technique**, an infant faces an adult who responds normally while two video cameras simultaneously record their interpersonal reactions (Tronick, 1989; Tronick & Weinberg, 1997). Frame-by-frame analysis reveals that parents instinctively synchronize their responses to the infants' movements, with exaggerated tone and expression. Babies reciprocate with smiles and flailing limbs. That is synchrony.

Then the adult stops all expression on cue, staring quietly with a "still face" for a minute or two. Sometimes by 2 months, and clearly by 6 months, infants are upset when their parents are unresponsive. Babies frown, fuss, drool, look away, kick, cry, or suck their fingers. By 5 months, they also vocalize, as if to say, "React to me" (Goldstein et al., 2009).

Many studies of still faces and other interactions reach the same conclusion: Synchrony is experience-expectant, not simply experience-dependent. Responsiveness aids psychosocial and biological development, evident in heart rate, weight gain, and brain maturation. Particularly in the first year, mothers who are depressed and anxious are less likely to synchronize their responses, and then babies become less able to respond to social cues (Atzil et al., 2014).

For example, one study looked in detail at 4-month-old infants during and immediately after the still-face episode (Montiroso et al., 2015). The researchers found three clusters, which they called "socially engaged" (33 percent), "disengaged" (60 percent), and "negatively engaged" (7 percent).

When the mothers were still-faced, the socially engaged babies remained active, looking around at other things. When the still face was over, they quickly re-engaged. The disengaged group became passive, taking longer to return to normal. The negatively engaged were angry and crying, even after the still face ended.

The mothers of each type differed, with the engaged mothers matching the infants' actions (bobbing head, opening mouth, and so on) and the negative mothers almost never matching. The researchers suggest that the "distinctive patterns of infants' individual differences" determined the mothers' behavior (Montirosso et al., 2015, p. 67). However, as was already explained, other researchers would do the opposite, with mothers determining the infants' behavior. Either way, a lack of synchrony is a troubling sign.

Attachment

Toward the end of the first year, face-to-face synchrony almost disappears. Once infants can walk, they are no longer content to respond, moment by moment, to adult facial expressions and vocalizations.

Instead **attachment** becomes evident. Actually, as thousands of researchers on every continent have shown, attachment is lifelong, beginning before birth and influencing relationships throughout life (see At About This Time).

Attachment has been studied with atypical populations (e.g., infants with Down syndrome, with autism spectrum disorder, and so on), with teenagers, and with adults (Simpson & Rholes, 2015; K. Grossmann et al., 2014). This field of study was inspired by John Bowlby's theories (1982, 1983) and by Mary Ainsworth, who described mother-infant relationships in central Africa 60 years ago (Ainsworth, 1967).

SIGNS OF ATTACHMENT As Ainsworth noted, infants show their attachment through *proximity-seeking* (such as approaching and following their caregivers) and through *contact-maintaining* (such as touching, snuggling, and holding). Attachment needs are

attachment

According to Ainsworth, "an affectional tie" that an infant forms with a caregiver—a tie that binds them together in space and endures over time

At About This Time: Stages of Attachment

Birth to 6 weeks

Preattachment. Newborns signal, via crying and body movements, that they need others. When people respond positively, the newborn is comforted and learns to seek more interaction. Newborns are also primed by brain patterns to recognize familiar voices and faces.

6 weeks to 8 months

Attachment in the making. Infants respond preferentially to familiar people by smiling, laughing, babbling. Their caregivers' voices, touch, expressions, and gestures are comforting, often overriding the infant's impulse to cry. Trust (Erikson) develops.

8 months to 2 years

Classic secure attachment. Infants greet their primary caregivers, play happily when they are present, show separation anxiety when their primary caregivers leave. Both infant and caregiver seek to be close to each other (proximity) and frequently look at each other (contact). In many caregiver-infant pairs, physical touch (patting, holding, caressing) is frequent.

2 to 6 years

Attachment as launching pad. Young children seek their caregivers' praise and reassurance as their social world expands. Interactive conversations and games (hide-and-seek, object play, reading, pretending) are common. Children expect caregivers to comfort and entertain.

6 to 12 years

Mutual attachment. Children seek to make their caregivers proud by learning whatever adults want them to learn, and adults reciprocate. In concrete operational thought (Piaget), specific accomplishments are valued by adults and children.

12 to 18 years

New attachment figures. Teenagers explore and make friendships independent from parents, using their working models of earlier attachments as a base. With formal operational thinking (Piaget), shared ideals and goals become influential.

18 years on

Attachment revisited. Adults develop relationships with others, especially relationships with romantic partners and their own children, influenced by earlier attachment patterns. Past insecure attachments from childhood can be repaired rather than repeated, although this does not always happen.

Data from Grobman, 2008


LaunchPad

Video Activity: Mother Love and the Work of Harry Harlow features classic footage of Harlow's research, showing the setup and results of his favorite experiment.

secure attachment

A relationship in which an infant obtains both comfort and confidence from the presence of his or her caregiver.

insecure-avoidant attachment

A pattern of attachment in which an infant avoids connection with the caregiver, as when the infant seems not to care about the caregiver's presence, departure, or return.

insecure-resistant/ambivalent attachment

A pattern of attachment in which an infant's anxiety and uncertainty are evident, as when the infant becomes very upset at separation from the caregiver, such infants both resist and seek contact on reunion.

disorganized attachment

A type of attachment that is marked by an infant's inconsistent reactions to the caregiver's departure and return.

evident when a baby cries if the caregiver closes the door when going to the bathroom (lost proximity) or fusses if a back-facing car seat prevents the baby from seeing the parent (lost contact).

Some caregivers take the baby into the bathroom, leading to one mother's complaint that she hadn't been alone in the bathroom for two years (Senior, 2014). Often caregivers sing and talk to the baby when they are out of sight. Maintaining contact need not be physical: Visual or verbal connections can express attachment. Later on, in adulthood, a phone call or a text message may be enough.

Caregivers show many signs that attachment is mutual. They keep a watchful eye on their baby, and they elicit interaction with expressions, gestures, and sounds. Before going to sleep at midnight they might tiptoe to the crib to gaze at their sleeping infant, or, in daytime, absentmindedly smooth their toddler's hair.

Attachment is universal, being part of the inborn social nature of the human species. The particular ways it is expressed depend on culture. For instance, Ainsworth reported that Ugandan mothers never kiss their infants, but they often massage them, contrary to Westerners.

Some adults remain in contact simply by sitting in the same room as each reads quietly. In some cultures, adults often hold hands, hug, or touch each other's faces, shoulders, or buttocks. Some scholars believe that attachment, not only with mothers but also fathers, grandparents, and nonrelatives, is one reason that *Homo sapiens* thrived when other species became extinct (Hrdy, 2009).

SECURE AND INSECURE ATTACHMENT Attachment is classified into four types: A, B, C, and D (see Table 4.1). Infants with **secure attachment** (type B) feel comfortable and confident. The caregiver is a *base for exploration*, providing assurance and enabling discovery. A toddler might, for example, scramble down from the caregiver's lap to play with an intriguing toy but periodically look back and vocalize (contact-maintaining) or bring the toy to the caregiver for inspection (proximity-seeking).

By contrast, insecure attachment (types A and C) is characterized by fear, anxiety, anger, or indifference. Some insecure children play independently without maintaining contact; this is **insecure-avoidant attachment** (type A). The opposite reaction is **insecure-resistant/ambivalent attachment** (type C). Children with this type of attachment cling to the caregiver and are angry at being left.

Ainsworth's original schema differentiated only types A, B, and C. Later researchers discovered a fourth category (type D), **disorganized attachment**. Type D infants may shift suddenly from hitting to kissing their mothers, from staring blankly to crying hysterically, from pinching themselves to freezing in place.

Among the general population, almost two-thirds of infants are secure (type B). Their mothers' presence gives them courage to explore; her departure causes distress;

Patterns of Infant Attachment

Type	Name of Pattern	In Playroom	Mother Leaves	Mother Returns	Toddlers in Category (%)
A	Insecure-avoidant	Child plays happily.	Child continues playing.	Child ignores her.	10–20
B	Secure	Child plays happily.	Child pauses, is not as happy.	Child welcomes her, returns to play.	50–70
C	Insecure-resistant/ambivalent	Child clings, is preoccupied with mother.	Child is unhappy, may stop playing.	Child is angry; may cry, hit mother, cling.	10–20
D	Disorganized	Child is cautious.	Child may stare or yell; looks scared, confused.	Child acts oddly; may scream, hit self, throw things.	5–10

her return elicits positive social contact (such as smiling or hugging) and then more playing. The infant's balanced reaction—being concerned but not overwhelmed by comings and goings—indicates security. Early research was only on mothers. Later, fathers and other caregivers were included; they also had secure or insecure attachments to their infants.

About one-third of infants are insecure, either indifferent (type A) or unduly anxious (type C). About 5 to 10 percent of infants fit into none of these categories; they are disorganized (type D), with no consistent strategy for social interaction, even avoidance or resistance. Sometimes they become hostile and aggressive, difficult for anyone to relate to (Lyons-Ruth et al., 1999). Unlike the first three types, disorganized infants have elevated levels of cortisol in reaction to stress (Bernard & Dozier, 2010).

MEASURING ATTACHMENT Ainsworth (1973) developed a now-classic laboratory procedure called the **Strange Situation** to measure attachment. In a well-equipped playroom, an infant is observed for eight episodes, each lasting three minutes. First, the child and mother are together. Next, according to a set sequence, the mother and then a stranger come and go. Infants' responses indicate which type of attachment they have formed.

Researchers are trained to distinguish types A, B, C, and D. They focus on the following:

- *Exploration of the toys.* A secure toddler plays happily.
- *Reaction to the caregiver's departure.* A secure toddler shows some sign of dismay when the caregiver leaves.
- *Reaction to the caregiver's return.* A secure toddler welcomes the caregiver's reappearance, usually seeking contact, and then plays again.

Attachment is not always measured via the Strange Situation; surveys and interviews are also used. Sometimes parents answer 90 questions about their children's characteristics, and sometimes adults are interviewed extensively (according to a detailed protocol) about their relationships with their own parents, again with various specific measurements. Attachment can be assessed in middle school children, adolescents who are dating, and with an entire family, via verbal responses or actions (Farnfield & Holmes, 2014).

Research measuring attachment has revealed that some behaviors that might seem normal are, in fact, a sign of insecurity. For instance, an infant who clings to the caregiver and refuses to explore the toys might be type C. Likewise, adults who say their childhood was happy and their mother was a saint, especially if they provide

Strange Situation

A laboratory procedure for measuring attachment by evoking infants' reactions to the stress of various adults' comings and goings in an unfamiliar playroom.

Excited, Troubled, Comforted This sequence is repeated daily for 1-year-olds, which is why the same sequence is replicated to measure attachment. As you see, toys are no substitute for a mother's comfort if the infant or toddler is secure, as this one seems to be. Some, however, cry inconsolably or throw toys angrily when left alone.



few specific memories, might be insecure. And young children who are immediately friendly to strangers may never have formed a secure attachment (Tarullo et al., 2011).

Assessments of attachment that were developed and validated for middle-class North Americans may be less useful in other cultures. Infants who seem dismissive or clingy in the Strange Situation may not necessarily be insecure.

Insecure Attachment and the Social Setting

At first, developmentalists expected secure attachment in infancy to “predict all the outcomes reasonably expected from a well-functioning personality” (Thompson & Raikes, 2003, p. 708). But this expectation turned out to be naive.

Securely attached infants *are* more likely to become secure toddlers, competent preschoolers, high-achieving schoolchildren, and capable parents. Attachment affects early brain development, one reason these later outcomes occur (Diamond & Fagundes, 2010). But insecure infants are not doomed to later failure.

Although attachment patterns form in infancy (see Table 4.2), they are not set in stone; a securely attached infant may become insecure if the family context changes, such as with new abuse or income loss. Poverty increases the likelihood of insecure attachment, and insecure attachment correlates with later learning problems, but a third variable may be the reason for this correlation.

The third variable most often suggested is low SES. Hostile children, fearful adults, delayed language, and low school achievement all correlate with low parental education, as does insecure attachment. The premise—that responsive early parenting leads to secure attachment, which buffers stress and encourages exploration—seems valid, but lack of attachment may be a sign of deeper social problems. Low SES is problematic in many ways, but we should note that both secure and insecure attachment occur at every income level.

Certainly infant responses in the Strange Situation are only one measure of the parent-child relationship. Linking attachment measured by the Strange Situation directly to later problems may not be warranted, especially in cultures with other patterns of mother-child interaction (Keller, 2014).

Predictors of Attachment Type

Secure attachment (type B) is more likely if:

- The parent is usually sensitive and responsive to the infant's needs.
- The infant-parent relationship is high in synchrony.
- The infant's temperament is “easy.”
- The parents are not stressed about income, other children, or their marriage.
- The parents have a working model of secure attachment to their own parents.

Insecure attachment is more likely if:

- The parent mistreats the child. (Neglect increases type A; abuse increases types C and D.)
- The mother is mentally ill. (Paranoia increases type D; depression increases type C.)
- The parents are highly stressed about income, other children, or their marriage. (Parental stress increases types A and D.)
- The parents are intrusive and controlling. (Parental domination increases type A.)
- The parents actively abuse alcohol. (Father with alcohol use disorder increases type A; mother with alcohol use disorder increases type D.)
- The child's temperament is “difficult.” (Difficult children tend to be type C.)
- The child's temperament is “slow to warm up.” (This correlates with type A.)



Predict Their Future These three infants, photographed in Romania in 1990, are now young adults, still affected by the deprivation evident here

OBSERVATION QUIZ

What three possible dangers do you see? (see answer, page 145) ◀

INSIGHTS FROM ROMANIA No scholar doubts that close human relationships should develop in the first year of life and that the lack of such relationships risks dire consequences. Unfortunately, thousands of children born in Romania are proof.

When Romanian dictator Nicolae Ceausescu forbade birth control and abortions in the 1980s, illegal abortions became a leading cause of death for Romanian women aged 15 to 45 (Verona, 2003), and more than 100,000 children were abandoned to crowded, impersonal, state-run orphanages. The children experienced severe deprivation, including virtually no normal interaction, play, or conversation.

In the two years after Ceausescu was ousted and killed in 1989, thousands of those children were adopted by North American, western European, and Australian families. Those who were adopted before 6 months of age fared best; the adoptive parents established synchrony via play and caregiving. Most of them developed normally.

For those adopted after 6 months, and especially after 12 months, early signs were encouraging: Skinny infants gained weight and grew faster than other 1-year-olds, developing motor skills they had lacked (H. Park et al., 2011). However, their early social deprivation soon became evident in their emotions and intellect. Many were overly friendly to strangers throughout childhood, a sign of insecure attachment (Tarullo et al., 2011). At age 11, their average IQ was only 85, which is 15 points below normal (Rutter et al., 2010).

Even those who were well nourished or who caught up to normal growth often became impulsive, angry teenagers. Apparently, the stresses of adolescence and emerging adulthood exacerbated the cognitive and social strains on these young people and their families (Merz & McCall, 2011).

These children are now adults, some with serious emotional or conduct problems. The cause is more social than biological. Research on children adopted nationally and internationally finds that many become normal adults, but every stress—from rejection in infancy to early institutionalization to the circumstances of the adoption process—makes a good outcome more difficult to attain (Grotevant & McDermott, 2014).

Romanian infants are no longer available for international adoption, even though some remain abandoned. Research confirms that early emotional deprivation, not genes or nutrition, is their greatest problem. Romanian infants develop best in their own families, second best in foster families, and worst in institutions (Nelson et al., 2007).

As best we know, this applies to infants everywhere: Families usually nurture their babies better than strangers who care for many infants at once, and the more years children spend in an impersonal institution, the more likely it is they will become socially and intellectually impaired (Julian, 2013).

Developing Attachment

Attachment begins at birth and continues lifelong. Much depends not only on the ways in which parents and babies bond, but also on the quality and consistency of caregiving, the safety and security of the home environment, and individual and family experience. While the patterns set in infancy may echo in later life, they are not determinative.

HOW MANY CHILDREN ARE SECURELY ATTACHED?

The specific percentages of children who are secure and insecure vary by culture, parent responsiveness, and specific temperament and needs of both the child and the caregiver. Generally, about a third of all 1-year-olds seem insecure.

50-70%

Securely Attached (Type B)

10-20%

Avoidant Attachment (Type A)

10-20%

Ambivalent Attachment (Type C)

5-10%

Disorganized Attachment (Type D)

ATTACHMENT IN THE STRANGE SITUATION MAY INFLUENCE RELATIONSHIPS THROUGH THE LIFE SPAN

Attachment patterns formed early affect adults lifelong, but later experiences of love and rejection may change early patterns. Researchers measure attachment by examining children's behaviors in the Strange Situation where they are separated from their parent and play in a room with an unfamiliar caregiver. These early patterns can influence later adult relationships. As life goes on, people become more or less secure, avoidant, or disorganized.

Securely Attached [Type B]

In the Strange Situation, children are able to separate from caregiver but prefer caregiver to strangers.

Later in life, they tend to have good relationships and good self-esteem.

Avoidant [Type A]

In the Strange Situation, children avoid caregiver.

Later in life, they tend to be aloof in personal relationships.

Resistant/Ambivalent [Type C]

In the Strange Situation, children appear upset and worried when separated from caregiver; they may hit or cling.

Later in life, their relationships may be angry, stormy, unpredictable.

Disorganized [Type D]

In the Strange Situation, children appear angry, confused, erratic, or fearful.

Later in life, they can demonstrate odd behavior—including sudden emotions.

THE CONTINUUM OF ATTACHMENT

Avoidance and anxiety occur along a continuum. Neither genes nor cultural variations were understood when the Strange Situation was first developed (in 1965). Some contemporary researchers believe the link between childhood attachment and adult personality is less straightforward.

