



## Prenatal Development

### Stages

- During the *germinal stage* a zygote becomes a mass of cells that implants in the uterine wall and the placenta begins to form.
- During the *embryonic stage* most vital organs and bodily systems begin to form, making it a period of great vulnerability.
- During the *fetal stage* organs continue to grow and gradually begin to function, as the fetus reaches the *age of viability* around 22–26 weeks.

### Environmental influences

- Maternal malnutrition increases newborns' risk for birth complications and neurological deficits.
- Maternal consumption of alcohol, tobacco, and other drugs can have a variety of negative effects on prenatal development.
- Maternal illnesses can interfere with prenatal development, and genital herpes and AIDS can be passed to newborns at birth.

### Motor development

- Motor development follows *cephalocaudal* (head-to-foot) and *proximodistal* (center-outward) trends.
- Early progress in motor skills has traditionally been attributed to *maturation*, but recent research suggests that infants' exploration is also important.
- Cross-cultural research on motor development shows that maturation and environment are both influential.

### Cognitive development

- Jean Piaget proposed that children evolve through four stages of cognitive development.
- According to Piaget, children progress in their thinking through the complementary processes of *assimilation* and *accommodation*.
- The major achievement of the *sensorimotor period* (birth to age 2) is the development of object permanence.
- Children's thought during the *preoperational period* (ages 2–7) is marked by centration, animism, irreversibility, and egocentrism.
- In the *concrete operational period* (ages 7–11) children develop the ability to perform operations on mental representations.
- In the *formal operational period* (age 11 onward) thought becomes more systematic, abstract, and logical.
- Lev Vygotsky's *sociocultural theory* asserts that children's cognitive development is shaped by social interactions, language development, and cultural factors.
- According to Vygotsky, children acquire their culture's cognitive skills through collaborative dialogues with more-experienced members of their society.
- Researchers have found that infants understand complex concepts, such as addition, that they have had little opportunity to acquire through learning.
- Nativists and evolutionary theorists argue that children's brains are prewired to readily understand certain concepts.

### Approaches to research on development

- In a *longitudinal study* one group of subjects is observed repeatedly over time.
- In a *cross-sectional study* groups of subjects of varied ages are observed at a single point in time.
- Cross-sectional studies are quicker and easier, but longitudinal studies can be more sensitive.

### Temperament

- *Temperament* refers to characteristic mood, activity level, and emotional reactivity.
- In a longitudinal study, Thomas and Chess found that temperament remains fairly stable as children grow up.
- Jerome Kagan's research suggests that inhibited and uninhibited temperaments are stable over time and that they have a genetic basis.

### Attachment

- *Attachment* refers to the close emotional bonds of affection that develop between infants and their caregivers.
- Harry Harlow's studies of infant monkeys showed that reinforcement is not the key to attachment.
- John Bowlby argued that attachment has a biological and evolutionary basis.
- Research has shown that infant-mother attachments fall into four categories: secure, anxious-ambivalent, avoidant, and disorganized-disoriented.
- Infants with a relatively secure attachment tend to become resilient, competent toddlers with high self-esteem.
- Cultural variations in child rearing influence the patterns of attachment seen in a society.
- According to Jay Belsky, children have been wired by evolution to respond to sensitive or insensitive care with different attachments that would have been adaptive in ancestral times.



## Development in Childhood

### Moral development

- Lawrence Kohlberg's theory proposes that individuals progress through three levels of moral reasoning.
- *Preconventional reasoning* focuses on acts' consequences, *conventional reasoning* on the need to maintain social order, and *postconventional reasoning* on working out a personal code of ethics.
- Age-related progress in moral reasoning has been found in research, but there is a lot of overlap among stages.

### Personality development

- Erik Erikson's theory proposes that individuals evolve through eight stages over the life span.
- *Stage theories* assume that individuals progress through stages in a particular order, that progress is strongly related to age, and that new stages bring major changes in characteristic behavior.
- Erikson's four childhood stages are trust versus mistrust, autonomy versus shame, initiative versus guilt, and industry versus inferiority.





## Development in Adolescence

### Puberty and the growth spurt

- *Pubescence* is the 2-year span preceding puberty during which secondary sex characteristics begin to develop.
- *Puberty* is the stage during which *primary sex characteristics* develop fully.
- Girls who reach puberty early and boys who mature relatively late have a greater risk for psychological and social difficulties.
- The prefrontal cortex appears to be the last area of the brain to fully mature, and this maturation is not complete until late adolescence or early adulthood.

### Time of turmoil?

- Suicides and especially *attempted suicides* have risen dramatically among adolescents in recent decades, but *completed* suicide rates remain lower for adolescents than for older age groups.
- The data on *adolescent violence* suggest that adolescence is a time of turmoil, although the incidence of school violence has remained lower than widely perceived.
- The recent consensus of experts has been that adolescence does not appear to be more stressful than other periods of life.
- However, Jeffrey Arnett has marshalled evidence that suggests that adolescence is *somewhat* more stressful than other life stages.

### The search for identity

- According to Erikson, the main challenge of adolescence is the struggle for a sense of identity.
- According to James Marcia, adolescents deal with their identity crisis in four ways: *foreclosure*, *moratorium*, *identity diffusion*, and *identity achievement*.
- Age trends in identity status generally are consistent with Marcia's theory, but there is great variability and most people reach identity achievement at later ages than originally envisioned.

### Personality development

- During adulthood, personality generally remains fairly stable, but some people do experience significant changes.
- For the most part, research has not supported the notion that most people go through a *midlife crisis*.
- According to Erikson, people evolve through three stages of development in the adult years: intimacy versus isolation, generativity versus self-absorption, and integrity versus despair.

### Family transitions

- Adjusting to marriage is more likely to be difficult when spouses have different expectations about marital roles.
- Most parents are happy with their decision to have children, but the arrival of the first child represents a major transition, and the disruption of routines can be draining.
- Parent-adolescent relations are not as contentious as widely assumed, but conflicts do increase and parents tend to feel stressed.
- For many parents the transition to an *empty nest* seems to be less difficult than it used to be.



## Development in Adulthood

### Cognitive changes

- General intelligence is fairly stable throughout most of adulthood, with a small decline in average scores seen after age 60.
- The memory losses associated with aging are moderate and may be mostly due to declining working memory.
- Speed in cognitive processing tends to begin a gradual decline during middle adulthood.

### Physical changes

- In the sensory domain, vision and hearing acuity tend to decline, but glasses and hearing aids can compensate for these losses.
- Women's reactions to menopause vary and menopause is not as stressful as widely believed.
- Brain tissue and weight tend to decline after age 60, but this loss does not appear to be the key to age-related dementias.
- *Dementias* are seen in about 15%–20% of people over age 75, but they are not part of the normal aging process.
- Alzheimer's patients exhibit profound loss of brain tissue and the accumulation of characteristic neural abnormalities.

### Key Themes

- Psychology is theoretically diverse.
- Psychology evolves in a sociohistorical context.
- Heredity and environment jointly influence behavior.
- Behavior is shaped by cultural heritage.
- Behavior is determined by multiple causes.