

**SEXUAL DEVELOPMENT AND LEARNING
OVER THE LIFE SPAN**

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Research Series 072

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SEXUAL DEVELOPMENT AND LEARNING OVER THE LIFE SPAN

John W. Engel and Lee C. Kimmons

ABSTRACT

Sexual development is a continual process that unfolds throughout one's life. Salient aspects of the psychosocial dimensions of sexual development are described for each of the following stages: prenatal, infancy, childhood, adolescence, and young to late adulthood. Common characteristics for each stage are given along with a discussion of potential problems that may occur during particular stages. This overview of background information will assist the educational efforts related to this important aspect of human development at every age level. A list of resources is provided.

DEFINITION OF SEXUALITY

What is sex? For some, sex means genitals and coitus. When asked about their sex education, people tend to recall "birds and bees stories" and "facts of life talks" that focused on biological basics and unspecified dangers. In effect, sexuality was defined in terms of anatomy and reproduction. However, today, it is increasingly recognized that human sexuality involves much more than anatomy, genitals, coitus, and reproduction. In the context of family life, sexuality is associated with love, trust, and commitment. It has many components, including knowledge, beliefs, attitudes, values, skills, decisions, behaviors, emotions, and relationships, as well as anatomy and reproduction. Sexuality is a pervasive aspect of humanity and an important dimension and foundation of family life.

SEXUAL DEVELOPMENT AND LEARNING OVER THE LIFE SPAN

Sexuality is often associated with "youth" and adulthood. The very young and old are not often perceived to be sexual in the same way or to the same degree as teenagers and young adults. For example, the term "sexy" is not usually applied to either infants or to the elderly as it is to young adults. However, the components of sexuality develop along with other characteristics as humans grow and change over the life span from conception to death. Learning about sexuality continues to occur from conception to death.

Prenatal Sexual Development

The anatomical and physiological foundations of sexuality begin to develop in the womb prior to birth. While in the womb, the human fetus develops some ability to respond to sensory stimulation and appears to be capable of self-stimulation. Ultrasound observations show that some fetuses suck their thumbs (Montague, 1971) and, in the case of males, have erections (Masters, Johnson, and Kolodny, 1982). Because lips and genitals are erogenous zones and pleasure giving structures, such behaviors have implications for sensual/sexual development.

Sexual Development During Infancy

Humans continue to develop their ability to respond to stimulation and to stimulate themselves during infancy (Hyde, 1990; Katchadourian, 1989). Thumb sucking is common among infants. Accidental touching and discovery of genitals at 6 to 12 months of age is followed by more deliberate poking and tugging. Male infants have erections and female infants are capable of vaginal lubrication (Katchadourian and Lunde, 1975). Infants have been observed to masturbate and appear to be capable of orgasm (Hyde, 1990; Katchadourian and Lunde, 1975; Kinsey, Pomeroy, and Martin, 1948; Kinsey et al., 1953).

Infants begin to develop psychological and social abilities which are related to formation and maintenance of social relationships ("attachment") and trust/mistrust (Lefrancois, 1990). As they mature, they are increasingly aware of the feelings and attitudes of caregivers.

While infants and young children are nursed, bathed, dressed, and toilet trained, they pick up feelings which later become associated with values and attitudes towards genitals, bodily functions, nudity, sensuality, and self.

Sexual Development During Childhood

Sexual development continues during childhood. Children explore and learn about their own bodies, about others, about how they are similar and different, and about how their social environment and culture views and values sexuality. Some children masturbate. By age 2 or 2½, children know what gender they are and start to become aware of boy-girl differences. By age 4 or 5, children's sexuality becomes more social and additional learning about self and others results from sexual play and games.

"Playing Doctor" is a common game. It may be heterosexual, homosexual, or bisexual. It may involve exhibition of genitals, looking at the genitals of others, and sometimes a little touching. Children learn social norms and values from adult responses to their questions and play, both of which may be exploratory or learning directed activities. Games of show become less common and values of modesty and privacy usually develop by age 6 or 7 (Hyde, 1990).

Freud postulated a preadolescent period of latency during which sexual urges and interests decrease or "go underground" until "awakened" in adolescence. More contemporary research shows that, while a latency period might have been common in extremely repressive cultures/times (e.g., during the Victorian Era in Europe and America), sexual interests continue to be expressed, develop, and may increase in less sexually repressive cultures/times (Ford and Beach, 1951; Martinson, 1973).

Sexuality continues to develop during the preadolescent period. More and more children experience masturbation. Boys learn about masturbation from their same-sex peers, while girls learn through accidental self-discovery (Kinsey et al., 1953). By age 13, approximately 63 per-

cent of boys and 33 percent of girls experience masturbation (Hunt, 1974).

Preadolescent boys and girls tend to socialize more with same-sex peers than with opposite-sex peers. During this time, children develop same-sex "homosocial" relationships wherein they experience and work through feelings of love and friendship, attraction or repulsion, loyalty or betrayal and jealousy, and other feelings that will later be associated with romantic relationships. They also practice and develop communication and relationship-building skills.

Sexual Development During Puberty and Adolescence

Sexual development becomes more dramatic and the need for sexuality education is more obvious during puberty and adolescence. With increased production of sex hormones, secondary sex characteristics develop. Gonads (ovaries and testes) and genitals enlarge and mature, eventually leading to reproductive capacity. The physical changes of puberty often have implications for development of identity and self concept. Girls' experiences of menarche and boys' experiences of nocturnal emissions ("wet dreams") are accompanied by psychological reactions and adjustments that range from negative (e.g., fear, shame, disgust) to positive (e.g., pride). Adjustment problems or negative reactions seem to be associated with an absence of appropriate preparatory education (Hyde, 1990). Complicating preparatory educational efforts, the timing of pubertal changes varies considerably between sexes and between individuals within each sex. On the average, girls begin pubertal changes around 8 to 12 years of age, while boys start about 2 years later.

Girls usually experience the first sign of pubescence, growth or "budding" of breasts, around 8 to 12 years of age. This is usually accompanied or followed by a similar increase in fatty tissue at hips and buttocks. Pubic hair starts to grow. Underarm hair appears about 2 years later. Overall body growth increases sharply ("growth spurt"). The age at which

American girls first experience menstruation varies considerably. Menarche in the 5th grade is not unusual. Over 75 percent of girls start menstruation by age 13, and 96 percent start by age 15 (National Research Council, 1987). Normally, ovulation begins about 2 years after their menarche, making girls fertile.

The changes of puberty begin in boys at around 10 or 11 years of age. They experience rapid growth of penis, testes, and pubic hair. Facial and auxiliary hair begins to appear approximately 2 years later. The larynx ("voice box") enlarges and boys experience changes as their voices deepen. Penile erections increase in frequency, sometimes occurring spontaneously at inconvenient times (e.g., in the classroom). By age 13 or 14, boys are capable of ejaculation. The first ejaculation usually occurs as a result of masturbation. Nocturnal emissions usually begin about a year later. Boys who never masturbated may experience their first ejaculation as a nocturnal emission. The ejaculate of males contains mature sperm, and therefore males are fertile by about age 15 (Hyde, 1990).

Adolescence, loosely defined as the teenage years, is a period of transition into adulthood. Sexual interest increases as adolescents experience the physical changes of puberty and the pressures of peer groups and culture and as they date and rehearse for adult gender roles. Most boys and many girls begin masturbating to orgasm during adolescence (Kinsey, Pomeroy, and Martin, 1948; Kinsey et al., 1953). About 11 percent of boys and 6 percent of girls have homosexual experiences (Sorensen, 1973; DeLamater and MacCorquodale, 1979). Heterosexual experiences increase during middle and late adolescence. These experiences tend to progress from kissing, through tongue-in-mouth kissing and breast and genital fondling, to intercourse. Over 50 percent of males and females become sexually active (i.e., experience sexual intercourse for the first time) during their teen years (Forrest and Singh, 1990; Hyde, 1990; National Research Council, 1987; "Poll," 1991; Zelnick and Kantner, 1980). Since only about 7

percent of females and 1.5 percent of males marry during their teen years (National Research Council, 1987), most teenage sexual activity is pre- or non-marital. Approximately one million teenagers become pregnant in America each year (Hagenhoff et al., 1987; Henshaw et al., 1989). Pre/nonmarital teen pregnancy is a major social/sexual problem in America and is discussed in a later section.

Adult Sexual Development

Sexual development, maturation, and change continue throughout adulthood. Sarrel and Sarrel (1984) describe adult sexual development in terms of "stages" and transitions that many adults experience in varying degrees. In **Stage 1**, the "sexual unfolding" of adolescence continues. Young adults continue to explore and discover their sexuality. In **Stage 2**, young adults experiment with various levels of commitment (from exclusive dating to living together and cohabiting), making and breaking commitments in the process. In **Stage 3**, marriage yields the security of long-term commitment and results in social acceptance and approval. In **Stage 4**, "transition to parenthood," commitment increases and sexual motivation changes with the decision to have a baby. In **Stage 5**, parenting, the presence and needs of children may reduce privacy and opportunities for intimacy. At the same time, parents must learn to deal with their children's developing sexuality. In **Stage 6**, some adults experience divorce (and probably an associated deteriorating sexual relationship), dating (and the initiation of new sexual relationships), and remarriage. In **Stage 7**, adults endeavor to keep their sexual relationships alive and fulfilling as they adjust to the physical and psychological changes associated with aging.

Sexual Development During Early Adulthood

Young adults, ages 20 to 40, continue to explore and discover their sexuality. Many fall easily into traditional heterosexual patterns and norms. Others struggle with issues of sexual identity and orientation. While approximately 7

percent of males and half as many females have at least one homosexual contact to orgasm in adulthood, only about 2 percent of adult men and 1 percent of adult women are exclusively homosexual. Approximately 80 percent of adult men and 90 percent of adult women are exclusively heterosexual (Fay et al., 1989; Hyde, 1990).

For most young adults, dating involves a cycle of formation and termination of relationships. Through the dating process, young adults confirm their sexual identity, increase self-confidence, clarify sexual likes and dislikes, and develop skills and capacities for intimacy and commitment. In many cases, dating develops into pre- or nonmarital cohabitation (i.e., adults living together with sexual relations assumed) (Glick, 1990). Approximately 25 percent of college students live with a dating partner at some time during their college career (Rice, 1990). About 50 percent of adults applying for marriage licenses in some parts of the country are already living together prior to marriage (Gwartney-Gibbs, 1986). Whether dating or cohabiting, the majority of young adults are sexually active (Hunt, 1974; Hyde, 1990; Zelnik and Kantner, 1980), and must face issues of responsibility (e.g., birth control) and safety (e.g., prevention of sexually transmitted diseases). An estimated 20 million people become infected by sexually transmitted diseases (STD) each year (Yarber, 1985). STDs are discussed later as a social/sexual problem.

Marriage legitimizes sexual behavior in most cultures. With marriage comes sexual rights and responsibilities mandated by society and law. In America, young adult women marry for the first time at an average age of 24 and men at 26 (Glick, 1990). Despite recent trends towards increased nonmarital cohabitation and postponement of marriage, 80 to 90 percent of Americans marry. Of those who divorce, 75 to 85 percent remarry (Cherlin, 1981; Lamanna and Riedmann, 1988).

The typical married couple in America has sexual intercourse 2 to 3 times per week when they are in their 20s. Frequency of sexual inter-

course gradually decreases to about once per week after age 45 (Hyde, 1990). There is, however, considerable variation from couple to couple. While 18 to 45 percent of couples report having sex 3 or more times per week, 6 to 15 percent of couples report having sex once per month or less often (Blumstein and Schwartz, 1983).

Many married adults masturbate even though they have ready access to a sexual partner. In Hunt's (1974) sample, 72 percent of young husbands and 68 percent of young wives reported masturbating, with an average frequency of about twice a month for husbands and slightly less than once a month for wives.

Pregnancy, childbirth, and care of a newborn typically requires adjustment or change in sexual techniques and interaction. As a pregnancy progresses, previously favored methods of sexual stimulation (e.g., coitus with man on top) may no longer be comfortable and couples may need to experiment to find new ways of producing sexual satisfaction. New or alternative methods are also appropriate while the new mother's body heals following childbirth. Having and caring for a newborn can be very taxing and exhausting and at times new parents may have little energy or inclination for sex. Later, when children are more mobile, parents may still need to make a special effort to nurture their sexual relationship, to arrange for privacy, and to reserve time and energy for physical and emotional intimacy. At the same time, parents are called upon to be sex educators for their developing children.

Most married people, men slightly more than women, report being satisfied with their sexual relationships (Hyde, 1990). However, as married life progresses, many couples experience changes in feelings. Some couples find that sexual satisfaction increases while others find that it decreases for a time. One study (Hunt, 1974) indicates that married women were most satisfied with sex when they were 35 to 44 years old. Thus it appears that sexual satisfaction within marriage may increase, peak, and then decrease for some people. Special efforts are sometimes needed to maintain or enrich sexual

interest and vitality in marriage.

Some married couples experience emotional and/or sexual “disenchantment.” In some marriages, one or both partners have extramarital affairs. The incidence of extramarital sex in America varies considerably from group to group. A review of 11 studies shows that 20 to 66 percent of married men and 10 to 69 percent of married women reported having had at least one extramarital affair (Thompson, 1983).

Sexual Development During Middle and Late Adulthood

During middle and late adulthood (age 40 on) sexuality continues to develop and change. Women experience changes associated with “climacteric” and “menopause” (Hyde, 1990). Over a period of approximately 15 years, from about 45 to 60 years of age, women experience a climacteric in which they gradually lose the ability to reproduce. Functioning of the ovaries, including production of ovum and hormones such as estrogen, declines. Around age 47 (ranging from 35 to 60), women experience menopause, the cessation of menstruation, a process that takes about 2 years. Many women experience physical symptoms associated with menopause, such as “hot flashes,” dizziness, heart palpitations, insomnia, irritability, depression, or headache. Approximately 10 percent of women experience symptoms that are severely distressful. Estrogen-replacement therapy may relieve menopausal distress, but carries potential risks as well (Hammond and Maxson, 1982). On the other hand, 10 to 50 percent of women experience little or no symptoms with menopause (Hyde, 1990).

As a result of lower levels of estrogen, the vagina becomes less acidic and more vulnerable to infections, vaginal walls become less elastic, and there is less vaginal lubrication during sexual arousal. This may make intercourse uncomfortable or painful for some women. Some women who experience painful intercourse suffer in silence rather than communicate their discomfort to partner or physician. This may lead to an aversion to sex. Remedies, including use of

artificial lubricants as well as estrogen-replacement therapy, are available. Some women whose symptoms are less severe or who have obtained appropriate remedies report that sexual intercourse is better after menopause than it was before. While the physical capacity for orgasm remains the same, fears of getting pregnant are reduced (Hyde, 1990).

Technically, men in middle and late adulthood do not experience a biological “menopause.” Because men do not menstruate, they cannot stop menstruating. However, men do experience a gradual decline in production of testosterone and sperm. While the physical changes associated with aging in men can be seen as a mild version of the climacteric process experienced by women, they differ in that men may continue to produce viable sperm even into their 90s. On the other hand, some middle-aged men do experience psychological and social changes that can be very stressful. These psychological and social changes and associated stress have been referred to as “male mid-life crisis,” “male menopause,” and “male climacteric” (Brim, 1976; Levinson, 1978; Ruebsaat and Hull, 1975).

Common physical problems experienced by men in middle and late adulthood include enlargement of the prostate gland and associated urination problems. Ten percent of men have prostate enlargement by age 40, and by age 80 the number increases to 50 percent (Hyde, 1990). As men age and their production of testosterone gradually declines, erections occur more slowly, morning erections become less frequent, refractory periods lengthen, and the volume and force of ejaculation decrease.

As men and women age, there is some decline in sexual interest and frequency of sexual behaviors (Blumstein and Schwartz, 1983; Hyde, 1990). An extensive study of sexual patterns among the elderly (Breecher et al., 1984) found that many men and women continue to have orgasms, to masturbate, and to have sexual intercourse with spouses. Of women, 47 percent in their 50s, 37 percent in their 60s, and 33

percent of those 70 and over masturbated. Of men, 66 percent in their 50s, 50 percent in their 60s, and 43 percent of those 70 and over masturbated. Similarly, the majority of husbands and wives continued to have sex with their spouses. Of wives, 88 percent in their 50s, 76 percent in their 60s, and 65 percent of those 70 and over continued to have sex with their husbands. Of husbands, 87 percent in their 50s, 78 percent in their 60s, and 59 percent of those 70 or over continued to have sex with their wives.

Despite some decline in sexual interest and behavior with age, there is no biological age limit to sexual activity. In one study of healthy 80- to 102-year-olds, 62 percent of men and 30 percent of women reported that they continued to engage in sexual intercourse (Bretschneider and McCoy, 1988). An important factor in whether people remain sexually active is whether they have a partner and a relationship wherein sexuality may be expressed. Because of men's earlier mortality and their preference for younger women, more older women are left without partners, and therefore find it more difficult to remain sexually active. In general, both men and women continue to engage in sexual activity and to enjoy it as they age, given the opportunity.

As described above, human sexuality develops, grows, and changes over the life span, and sexual learning continues from conception to death.

SOCIAL/SEXUAL PROBLEMS AND CONCERNS

Social/sexual problems and concerns that are relatively widespread in America today include: teen pregnancy, AIDS and other STD, infertility, and sexual dysfunction. Since such problems are potentially life-changing and sometimes life-threatening, they deserve special consideration.

Teen Pregnancy

Teenage pregnancy is a serious and complex problem for American society. Approximately

one million teenagers become pregnant each year (Hagenhoff et al., 1987; Henshaw et al., 1989). In 1985, 1,031,000 adolescents aged 15 to 19 became pregnant; 31,000 of these pregnancies occurred in adolescents younger than 15 years of age. Each year, approximately 1 out of every 10 teenagers between the ages of 15 and 19 becomes pregnant (Trussell, 1988). Combining data from the census, national surveys, and Vital Statistics, it appears that 43 percent of all adolescent girls become pregnant at least once before their twentieth birthday (Forrest, 1986; National Research Council, 1987). Broken down by race, the rates are 40 percent for white teenagers and 63 percent for black teenagers. The United States has the highest teenage pregnancy rate of all Western nations (Scales, 1987; "Talking," 1987). White American teenagers are twice as likely to become pregnant as Canadian teenagers and four times as likely to become pregnant as Swedish teenagers (Henshaw et al., 1989; Hyde, 1990).

Teenage pregnancy is a source of great concern not only because of the number of teenagers affected, but also because of its consequences. Approximately 13 percent of teen pregnancies end in miscarriage and 40 percent are terminated by induced abortions (National Research Council, 1987). When teenage pregnancy is carried to term, teen birthing entails greater health risks to both mother and child than when the mother is more mature. While teenage mothers may relinquish their newborns for adoption, most elect to keep and raise their children. In 1982, an estimated 93 percent of unmarried mothers aged 15 to 19 kept their children rather than placing them up for adoption (Bachrach, 1986). Teen parenthood is associated with potentially negative health, social, and economic consequences for the teenage mother and her child.

Teenage mothers, compared to more mature mothers, have more health problems, including higher rates of complications during delivery and maternal morbidity and mortality. Teenage mothers who marry to legitimate childbirth tend to find themselves in unhappy/unstable

marriages. Teenage mothers are more likely to drop out of school. Even though they may return later, they attain less total education. Their employment opportunities are more limited. And they run a greater risk of being dependent upon public assistance and welfare programs or living in poverty (National Research Council, 1987).

The children born to teenage mothers, compared with children born to more mature mothers, have more health, psychological, and social problems. There is a greater risk of miscarriage, stillbirth, or premature birth with low birthweight or long-term health and developmental handicaps. They score lower on intelligence tests and achieve less in school. They tend to be more sexually active earlier in life and have a higher rate of teenage pregnancy (National Research Council, 1987). Thus it appears that in some families, the cycle of teen pregnancy and poverty perpetuates itself from generation to generation (Hyde, 1990).

Sexually Transmitted Disease (STD), with a Focus on Acquired Immune Deficiency Syndrome (AIDS)

STD and AIDS, acronyms for Sexually Transmitted Disease and Acquired Immune Deficiency Syndrome, are pressing contemporary problems that raise life and death issues. Although the germs that cause STD were not discovered until the last century, we have been aware of STD from the oldest books in the Bible wherein diseases that may have been gonorrhea, syphilis, and scabies were described. AIDS, however, is a very recent disease. Only since 1981 has AIDS been in the news, when reports surfaced about rare cancers, pneumonia, and other opportunistic infections, in people whose immune systems were being destroyed. Each year an estimated 20 million people in the United States become infected by STD, an average of one person every one and a half seconds (Yarber, 1985). More than 20 sexually transmitted diseases have been identified. The more common STDs today are chlamydia, gonorrhea, syphilis, genital herpes, and genital warts. The most deadly STD is AIDS. All are

passed through sexual contact and constitute a major health problem, particularly for adolescents and young adults.

Chlamydia. Chlamydia is the most prevalent STD in the United States (Centers for Disease Control, 1985). It is the second most common communicable disease, superseded only by the common cold (Spence, 1988). The Centers for Disease Control estimate that there are 5 to 10 million cases of chlamydia annually. Sexually active teenagers have the highest chlamydia infection rates of any age group. Although men, women, and infants are affected, women bear an inordinate burden because of their increased risk for adverse reproductive consequences. While most women are asymptomatic, chlamydial infections play an important role in acute pelvic inflammatory disease (PID), mucopurulent cervicitis (MPC), ectopic pregnancy, and infertility. Each year more than 155,000 infants born to chlamydia-infected mothers are at high risk of developing eye infections and pneumonia. Chlamydia is also responsible for about one-half of the reported cases of acute epididymitis and of nongonococcal urethritis (NGU) in men (Centers for Disease Control, 1985; Kelly, 1988; Spence, 1988).

Gonorrhea. Before the recent chlamydia epidemic, gonorrhea or "clap" was the most common STD. The Centers for Disease Control estimate between 2 and 5 million cases of gonorrhea annually (Kelly, 1988). Complicating matters, the paired, bean-shaped bacteria that cause gonorrhea are becoming increasingly resistant to treatment by penicillin and other drugs. Like chlamydia, gonorrhea is a serious cause of pelvic inflammatory disease and ectopic pregnancies in women, blindness in babies born of infected mothers, and prostate infections and sterility in men (Spence, 1988).

Syphilis. Syphilis is one of the oldest known sexually transmitted diseases, and, except for AIDS, is probably the most deadly if left untreated. For centuries, long-term consequences of untreated syphilis led to destruction of the brain, heart, joints, eyes, and other body organs,

and resulted in blindness, insanity, paralysis, or death (Spence, 1988). With the discovery of penicillin, a treatment became available to kill the *Treponema pallidum* spirochete which causes syphilis. As a result, the number of reported cases in the United States stabilized during the early 1980s, averaging 25,000 to 32,000 per year. However, by the late 1980s, there was evidence of a new epidemic. By January of 1988, the incidence of syphilis had reached its highest rate since 1950 (Engel, 1989; Spence, 1988).

Genital herpes. Genital herpes is caused by the Herpes simplex type 2 virus, a member of a family of viruses which also causes cold sores, chickenpox, shingles, and mononucleosis. The disease reached epidemic levels in the early 1980s. While levels may be subsiding now, at least 20 million people in the United States have been infected with the virus and another half million contract the disease each year (Kelly, 1988). Herpes is a lifelong infection. There are no vaccines to prevent infection and no cures to rid the body of the virus. A higher incidence of cervical and vulval cancer has been noted among women who have genital herpes and pregnant women risk infection of their infants during birth. According to Spence (1988), 50 percent of infants infected during birth die and the remaining 50 percent suffer severe brain or eye damage.

Genital warts. Genital warts, or condylomata acuminata, are caused by the human papilloma virus, which has 53 known strains. An estimated 3 million cases of genital warts are diagnosed annually to make this disease the most common sexually transmitted viral disease in the United States. People who begin sexual activity at an early age and who have multiple sexual partners in casual relationships are more prone to infection. While genital warts, which usually grow on the penis, vulva, anal area, or urethra, may not be particularly dangerous themselves, they are increasingly associated with cancer on the cervix, genitals, or other organs (Kelly, 1988).

Acquired Immune Deficiency Syndrome (AIDS). AIDS is the deadliest of all STDs. In

1980, AIDS was practically unknown. In 1984, when scientists identified the human immunodeficiency virus (HIV) that causes AIDS, fewer than 4500 Americans were stricken. Today, more than 3000 cases of AIDS are reported every month in this country alone ("AIDS," 1990). As of September 1, 1990, 146,746 cases had been diagnosed in the United States (Centers for Disease Control, 1990). The World Health Organization (WHO) estimates that 700,000 people have developed AIDS worldwide and 6 to 8 million have contracted the virus. "By the end of the decade, an estimated 5 million to 6 million will be sick, and the total number infected may approach 20 million" ("AIDS," 1990, p. 20). The death toll from AIDS is accelerating. Approximately 120,000 Americans died from AIDS in the 10 years since its discovery. An equal number or more Americans are expected to die from AIDS in the next 2 years ("Sleeping," 1991).

AIDS or HIV is transmitted from person to person primarily through the exchange of infected body fluids, such as blood, semen, or vaginal fluids. While most AIDS victims become infected through sexual contact (oral, anal, or vaginal) or by sharing drug needles and syringes with an AIDS carrier, some victims are infected by receiving blood transfusions from infected donors, and some babies are infected by their mothers before or during birth. There is little or no chance of infection from casual everyday contact with an HIV/AIDS carrier at home, work or school, from clothes, toilet seats, eating utensils, mosquito bites, kisses, saliva, sweat, tears, urine, or even bowel movement (Koop, 1988). While certain groups, such as homosexual and bisexual men and intravenous drug abusers were initially identified as "high risk," the incidence of AIDS is increasing rapidly in other groups. Both men and women, heterosexuals and homosexuals, and people of all ages, races, and socio-economic classes are at some risk of contracting this deadly disease.

After initial infection with HIV, the human body usually develops antibodies in the blood

within 2 to 8 weeks. The so-called "AIDS test" is actually a test for these antibodies. The presence of antibodies, and by extension HIV, does not mean that the person has AIDS. HIV may spend 10 or more years in an inactivated mode. The person with HIV may have no symptoms but is still a carrier and is capable of infecting others. Once activated, HIV impairs or destroys the human immune system and thereby increases vulnerability to other opportunistic infections that lead to death. When HIV-infected persons develop symptoms that are not yet life-threatening (e.g., swollen lymph nodes, fever, diarrhea, weight loss, fatigue, and other infections), the condition is called ARC (for AIDS-Related Complex). When symptoms of life-threatening infections (e.g., pneumonia or Kaposi's sarcoma) develop, the disease is diagnosed as AIDS. Despite a few experimental treatments such as AZT, there are no proven vaccines for prevention and no cures for AIDS ("AIDS," 1990).

Infertility

Infertility is a problem for many couples. By definition, a couple is infertile or has a reproductive problem if they have failed to conceive after trying for a year or more. An individual is sterile only when infertility is complete and permanent. Approximately 10 million Americans, 1 couple in 6 of childbearing age, are considered infertile. The incidence of fertility problems in America appears to be increasing from year to year. As more and more women delay marriage and parenting to focus on career development, more women are trying to have their first baby later in life than women did previously. Since the probability of fertility problems increases with age, these women are experiencing more fertility problems than do women in their 20s. Approximately 25 percent of women who attempt a first birth in their 30s experience a fertility problem. Incidence and probability of problems continue to increase as women approach menopause (and eventual sterility) in their late 40s. At the same time, younger women (in their 20s) appear to be having more

difficulties becoming pregnant for the first time. By the late 1980s, the infertility rate among women aged 20 to 24 was approximately 11 percent, three times what it was in the 1960s ("Desperately seeking baby," 1987).

Potential causes of infertility are numerous. Common causes of infertility in women include: (1) failure to ovulate, (2) fallopian tube blockage, (3) "hostile" cervical mucus that prevents passage of sperm, as well as (4) the normal effects of aging. Common causes of infertility in men include: (1) low sperm count and (2) low sperm motility. Treatments and solutions to fertility problems are also numerous and increasing. Treatment may involve education and counseling, medication, or surgery. Other solutions may involve artificial insemination, in vitro ("test-tube") fertilization, gamete intra-fallopian transfer, surrogate motherhood, or adoption. Some of these potential solutions have been controversial ("After baby M," 1988; "Baby talk," 1988; "Finally a ruling," 1987; Simon and Altstein, 1987; "The new origins," 1984). With appropriate professional help, approximately 60 percent of couples with serious fertility problems eventually succeed in having a baby. The other 40 percent fail. Many infertile couples experience years of tests, treatments, frustration, and costs that can be prohibitive ("Desperately seeking baby," 1987). Couples experiencing infertility may seek information or support from organizations such as the American Fertility Society and Resolve listed later under "Resources."

Sexual Dysfunction

Many couples experience a sexual dysfunction at one time or another. Sex therapists such as Masters and Johnson estimate that at least 50 percent of married couples in America experience some form of sexual dysfunction. Of the more common sexual dysfunctions, males may experience erectile or ejaculatory difficulties, females may experience orgasmic difficulties, and both men and women are reporting problems of low sexual desire. While the causes of sexual dysfunction are numerous and varied, the re-

sulting dysfunction can be seen to have both physical and psychological components. Unfortunately, ignorance, shame, fear, or guilt lead many people to suffer in silence, when new and effective treatments are available. Treatment for sexual dysfunction may include education, counseling, behavioral therapy or psychotherapy, and in some cases medication or surgery (Hartman and Fithian, 1974; Kaplan, 1974, 1979; Leiblum and Pervin, 1980; Masters and Johnson, 1970). While professionals from various disciplines (psychology, medicine, social work, marriage/family counseling, etc.) may provide therapy for sexual dysfunctions, not all are specifically trained in sex therapy. Few states regulate or license sex therapy per se. In most cases, consumers cannot rely on state laws to provide protection from charlatans or inadequately trained therapists. On the other hand, there is a national organization, The American Association of Sex Educators, Counselors, and Therapists (AASECT), that evaluates credentials and certifies sex counselors and therapists. Upon request, AASECT provides a list of certified sex counselors or therapists who practice in specific geographical locations. AASECT's address is provided later under "Resources."

IMPLICATIONS FOR EDUCATION

The developmental perspective, that sexuality grows and changes over the life span from conception to death, holds important implications for the content, timing, and process of sexuality education.

As defined and described above, human sexuality grows and changes over the life span. It develops psychological, ethical, socio-cultural, and biological dimensions. An individual's ideal total sexuality education/learning over a lifetime is comprehensive and includes all dimensions. Therefore, the content of comprehensive sexuality education includes knowledge, feelings, beliefs, values, attitudes, skills, behaviors, and relationships. In comprehensive sexuality education, physical development of genitals

and gonads is related to emotional and social development and adjustment. Accordingly, the significance of human sexuality is expressed in a person's total adjustment to life, in interpersonal relationships, family, and society.

Adjustments to developmental transitions and related experiences (e.g., puberty, menarche, nocturnal emissions, first coitus, marriage, parenthood, menopause, aging) range from very negative to very positive. Adjustment tends to be more positive when people have been appropriately prepared by education. For example, educational preparation can help make menarche a positive experience for girls and nocturnal emissions a positive experience for boys. Similarly, appropriate education may prevent unwanted pregnancy, sexually transmitted disease, or sexual dysfunction. For preparatory education to work, it must occur at the right time. Children need to learn about menarche and nocturnal emissions before they experience them. People need to learn about contraception and sexually transmitted diseases before they become sexually active. Research on normal sexual development over the life span can be helpful in predicting or estimating when a given developmental event or transition will occur (i.e., the time prior to which education would ideally be provided). For this purpose, research findings on normal variation (e.g., range in age a given event occurs) may be as useful as group averages (e.g., average age of event).

From the developmental perspective, humans learn, need to learn, and are capable of learning different things at different times. Education that is provided when the potential learner is not yet ready to learn is ineffective. The content of sexuality learning/education often depends upon developmental timing and maturity. While feelings and attitudes may be learned at all times, information and skills may not be relevant, understood, or retained unless encountered at appropriate times of readiness. As a child's cognitive and reasoning abilities develop, so do the child's abilities to understand the complexities of human sexuality. In-

dividuals may not be capable of learning sexual techniques nor able to be responsible for the consequences of sexual behaviors until they have reached a certain level of physical and emotional development, experience, and maturity. Ideally, sexuality education should be provided when learners are developmentally ready to learn. The content of sexuality education should be modified to fit the learner's needs and developmental maturity.

For educators (parents and professionals) to provide appropriate information at appropriate times, they need some awareness of the potential learner's present knowledge, needs, and readiness to learn new information. Developmental theory may help educators conceptualize levels and stages of sexual thinking and understanding. Psychologists (Bernstein, 1976; Bernstein and Cowan, 1975) have described how children's sexual understanding matures and develops in stages. Children are usually ready to understand one step beyond their present level of understanding.

Children's behaviors (e.g., sexual games) and questions about sexuality also provide an indication of current understanding, needs, and readiness for new information. Questions typically asked by children at various ages/grades have been identified (Bruess and Greenberg, 1988; Hyde, 1990; Schulz and Williams, 1969). Assuming that there are no inhibitions, a child's natural expressions of curiosity, including behaviors and questions, can be used as a guide to what the child knows and is ready to learn. Sexuality educators who ask questions and listen carefully should be able to do a better job of providing appropriate sexual information at appropriate times.

The timing of group sexual education is complicated by the fact that individuals develop and mature at different rates. There can be tremendous variation in developmental maturity, needs, and readiness to learn, from person to person at any given age. For example, one girl may experience menarche when 11 years old, while her friend of the same age/grade may

not experience her menarche until 4 or 5 years later. Parents can try to be sensitive to an individual child's development and readiness, by listening and by being available and open to questions. While professional family life and sexuality educators can try to be sensitive to individual readiness in similar ways, they often find themselves in situations which require them to design programs for groups of individuals who vary in readiness. Professional educators often have to work with predefined groups, such as children grouped by grade or age. For guidelines or examples of sex education curricula that outline content to be taught at different grade levels or ages, see Bruess and Greenberg (1988), Hyde (1990), or National Guidelines Taskforce (1991). For more general guidance in designing, selecting or evaluating curricula, see McCaffree (1986).

What is learned about sexuality is often complicated by how information is presented. In effect, humans hear and perceive not only words and their meanings, but also feelings and attitudes that are expressed nonverbally. Even silence on a given topic can be "heard" or interpreted to mean that the topic is embarrassing, unspeakable, or shameful. Some parents think that the absence of direct instruction is equivalent to no sexuality education at all. On the contrary, children also learn about sexuality by observing their parent's nonverbal as well as verbal reactions and behaviors, including reactions to the child's self-exploration, toilet training, sex play, questions, expressions of love, and by observing human interaction in the home.

Over the human life span, developmental transitions (e.g., puberty, childbirth, menopause, and aging) call for educational preparation. In some cases, problems (e.g., sexual dysfunction, unwanted pregnancy, STD/AIDS) may be prevented or ameliorated by timely and appropriate education and counseling. Adjustment to the transitions of normal sexual development is facilitated by preparatory education. Girls need to be prepared for menarche. Boys too need some preparation for the changes of puberty,

including spontaneous erections and nocturnal emissions. Childbirth classes can reduce fear and pain and thereby ease the transition to parenting. Education can prepare people for changes associated with menopause and aging, help them know what to expect and how to adjust, and help them remain sexually active. Sexual myths and unrealistic expectations may lead to sexual dysfunction unless prevented by appropriate education (Hartman and Fithian, 1974; Kaplan, 1974, 1979; Leiblum and Pervin, 1980; Masters and Johnson, 1970).

Most people would probably agree that the ideal place for sex education to occur is in the home, particularly when children are young. For most people, this does not happen. While young people indicate that they would prefer to learn about sex from their parents (Gagnon, 1965), in reality their primary source of sexual information turns out to be friends and their secondary source is independent reading (Gagnon, 1965; Hunt, 1974). Unfortunately, the information obtained from peers or picked up "on the street" is often inaccurate or false.

Most parents recognize their own limits and would like some professional help with their children's education. Most parents today recognize the need for and support sex education in the schools (Gallup, 1985; "Sex and schools," 1986). In 1986, Surgeon General Everett Koop advocated sex education (including AIDS education) in the schools for children beginning at age 8. Nevertheless, there continues to be a small minority of people opposed to sex education in the schools. At issue is "What, if any, sex education will be provided, if it's not provided in the schools?". So far, it is clear that the alternative sex education obtained from peers or friends, from "the street," and from most homes is very inadequate (Hyde, 1990).

Adults as well as children continue to learn about sexuality as they develop and change over the life span. Many adults probably prefer to continue their learning in the privacy of their own home or in the context of a loving and committed relationship. However, increasing

numbers of adults are interested in more formal and comprehensive study and are enrolling in sexuality courses at colleges and universities. Most colleges and universities offer at least one academic course on human sexuality. Some offer complete programs leading to a graduate degree. At least one institution, the University of Minnesota, offers a correspondence course in human sexuality (Engel, 1983), which makes formal academic study possible in the privacy of one's own home.

Sexual development theory suggests that sexual learning goes on from conception to death, in whatever contexts humans live. Research suggests that educational programs that integrate school, health clinic, home, and community are more effective than those that are more limited in scope (Engle, Saracino, and Bergen, 1993). To maximize effectiveness, it appears that sexuality education should take place in multiple contexts, including school, health clinic, church, and community as well as in the home.

Given that sexual learning continues over a lifetime, most people learn about their sexuality from many different sources including parents, peers/friends/lovers, school teachers, physicians, and, in some cases, professional family life educators or university professors. Unfortunately, the education people receive is often incomplete or inaccurate. At issue is the training and qualifications of the educators.

All parents are sex educators whether they want to be or not. Conscientious parents learn as much as they can about sex education and do the best they can. They have a particularly difficult job in an age when children need to be protected from sexual abuse, unwanted pregnancies, and AIDS. Most, if not all parents eventually pass some of this responsibility on to professional teachers, particularly as their children go to school. At that point, the issue becomes one of "What qualifications should the professionals have?"

Sexuality educators should have at least three characteristics: (1) comfort in sexual communication, (2) ability to listen, understand questions, and assess needs, and (3) appropri-

ate education and knowledge about human sexuality (Hyde, 1990).

Comfort in sexual communication is important at all levels, whether the teacher is a parent interacting with a 2-year-old, a school teacher interacting with 12-year-olds, a family life educator teaching adults, or a college professor training future sexuality educators. Comfort seems to come naturally for some people. Others have to work at it. Workshops designed to increase communication skills and comfort are sometimes available in the community (sponsored by schools, churches, family service agencies, and universities). Sex educator training programs are typically designed to increase comfort. In some cases, potential educators may need the help of a professional counselor to deal with feelings and attitudes that interfere with sexual comfort and communication.

Being a good listener is important at all levels of sexuality education. The teacher needs to be able to assess what the student knows, needs to understand what is wanted or needed when a question is asked, and must recognize opportunities for learning.

The amount of knowledge about sexuality that a teacher requires depends upon the needs and age or maturity of the students. Elementary school teachers need not know as much as high school teachers, who need not know as much as university professors. A college or university course in human sexuality may provide a good knowledge base for teachers of elementary, middle, and high school students. Teachers of college students and adults need additional education and training. Specific sexuality coursework is included among requirements of the National Council on Family Relations (NCFR) for certification as a professional family life educator. Extensive sexuality coursework, supervised internship, graduate degree, and years of experience are required by AASECT for certification as a professional sex educator. For more information about qualifications, training, or careers in family life education or sex education, contact NCFR or AASECT at the

addresses provided later under "Resources."

Sexuality Learning and Education in the Future

All humans are sexual in varying ways and degrees. Sexual development and learning continues from conception to death. Given today's many sexual concerns and problems, including unwanted pregnancies and AIDS, people need a more effective and comprehensive sex education than a one-time "birds and bees" story, "facts of life" talk or one week sex-ed module provided by the local school in the 7th grade. Sex education that reflects the many dimensions of sexuality, including beliefs and values as well as biology is needed. As sexual development is a life-long process, sex education and information needs to be available and geared for people of all ages and situations.

RESOURCES

- AIDS Hotline. Telephone 1 (800) 342-AIDS. Operated by the U.S. Public Health Service, provides information about AIDS and referrals to AIDS-related services in any particular geographical location.
- American Association of Sex Educators, Counselors, and Therapists (AASECT). Eleven Dupont Circle, N.W., Suite 220, Washington, D.C. 20036. Telephone (202) 462-1171. AASECT certifies sex educators, counselors, and therapists, and publishes the *Journal of Sex Education and Therapy*.
- American Fertility Society. 2131 Magnolia Avenue, Suite 201, Birmingham, AL 35256.
- Association for Voluntary Surgical Contraception. 122 East 42nd Street, New York, NY 10168. Provides information on sterilization.
- National Abortion Rights Action League. 1101 14th St. N. W., Washington, D.C. 20005. Telephone (202) 371-0779. A "pro-choice" group that provides information and referral related to abortion.
- National Council on Family Relations (NCFR).

3989 Central Ave. N.E., Suite 550, Minneapolis, MN 55421. Telephone (612) 781-9331. NCFR certifies family life educators and publishes various educational resources, including the applied journal *Family Relations*.

National Right to Life Committee. Suite 402, 419 7th Street, N.W., Washington, D.C. 20004. Telephone (202) 626-8800. A "pro-life" group that provides information and referral related to abortion and alternatives.

Planned Parenthood Federation of America. 810 Seventh Ave., New York, NY 10019. Telephone (202) 541-7800. An organization of family planning agencies, which offer information, referral, and services related to birth control and sexual health.

Resolve, Inc. 5 Water Street, Arlington, MA 02174. Resolve is an organization of support groups for infertile couples, which has local chapters in many communities across the country.

Sex Information and Education Council of the United States (SIECUS). 130 West 42nd Street, Suite 2500, New York, NY 10036. SIECUS publishes various educational resources, including the *SIECUS Report*.

Journals that may contain articles on sexual development or education include:

Archives of Sexual Behavior
Family Perspective
Family Planning Perspectives
Family Relations
Journal of Marriage and the Family
Journal of School Health
Journal of Sex Research
Journal of Sex and Marital Therapy
Journal of Gay and Lesbian Psychotherapy
Journal of Sex Education and Therapy
Journal of Homosexuality
Medical Aspects of Human Sexuality
Sexuality and Disability

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HITAHR RESEARCH SERIES 072—03.94 (1.3M)