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20 Adolescent pregnancy

Donald E. Greydanus, Marlene Huff, and Hatim A. Omar

More than 14 million adolescents in the world annually give birth, and nearly 800,000 adolescents in the United States become pregnant each year. This chapter considers concepts of teen pregnancy including risks to the mother as well as offspring, the adolescent father, issues related to abortion, and concepts of prevention of unwanted pregnancy in youth. Adolescent pregnancy is global phenomenon affecting all societies and cultures.

20.1 Introduction

There are more than 14 million adolescents in the world giving birth each year, including 5.7 million in Asia, 4.5 million in sub-Saharan Africa, 2.1 million in the Middle East and North Africa, and 1.3 million in the developed countries (1). In North America, 5 percent of females ages 15–19 give birth each year, in contrast to 2 percent in Europe, 4 percent in Asia, 8 percent in Latin America, and 12 percent in Africa (2). Approximately 750,000 adolescent pregnancies occur annually in the United States to those 15 to 19 years of age; delivery of a live baby occurs in 51 percent, while 35 percent end in abortion (400,000) and 14 percent in miscarriage (3). Approximately 82 percent of adolescent pregnancies are unintended, and 40 percent of these end in abortion. In 2008, there were 434,758 live births to adolescent females under age 20 out of a total birth number of 4,247,696 in the United States (4).

The following box reviews teen birth rates (ages 15–19 years of age) in the United States over the last part of the twentieth century, indicating a drop in pregnancies since 1960, except for several years in the late 1980s and early 1990s (5). This reduction in adolescent pregnancies is noted in all teen age groups (less with those 10 to 14 years of age) and racial/ethnic groups (especially black teenagers); this drop is especially observed in the 15- to 17-year-old teen (6). Considerable ethnic disparity, as reflected in ►Figs. 20.1 and 20.2, is noted in adolescents in the United States, with more pregnancies and births noted in black and Hispanic youth than Caucasian youth (3,7). Abortion rates among adolescents increased in the 1970s, stabilized in the 1980s, and has dropped since the late 1980s. This drop in adolescent pregnancies and abortions is due to increased availability of contraceptives as well as less youth becoming sexually active (8).

American adolescent birth rates

1. Highest rates: 1950s–1960s
2. 1970: 66/1,000 females 15–19 years age
3. 1986: 50.2
4. 1990: 60

American adolescent birth rates *(Continued)*

- 5. 1991: 62
- 6. 1997: 53
- 7. 1998: 51
- 8. 1999: 49.6
- 9. 2000: 48.5
- 10. 2001: 45.9
- 11. 2002: 43.0
- 12. 2006: 40.0
- 13. 2009: 39.1

From (10) and Facts at a glance. Washington, DC: Child Trends Inc., 2003; Moore KA, 2009.

However, more than 40 percent of American teen females become pregnant at least once per year before they turn 20, and adolescent females account for 13 percent of all births in America and 26 percent of the abortions (2,9). Approximately 8 percent of 15- to 19-year-old American female adolescents become pregnant each year. Most teenage pregnancies are to those 18 or 19 years of age, though there were more than 12,000 pregnancies in those under age 15 in 1992 versus less than 7,000 in 1960. Teenage pregnancy under age 15 is relatively rare in the world with under 3 percent of women in developing countries give birth by age 15 years.

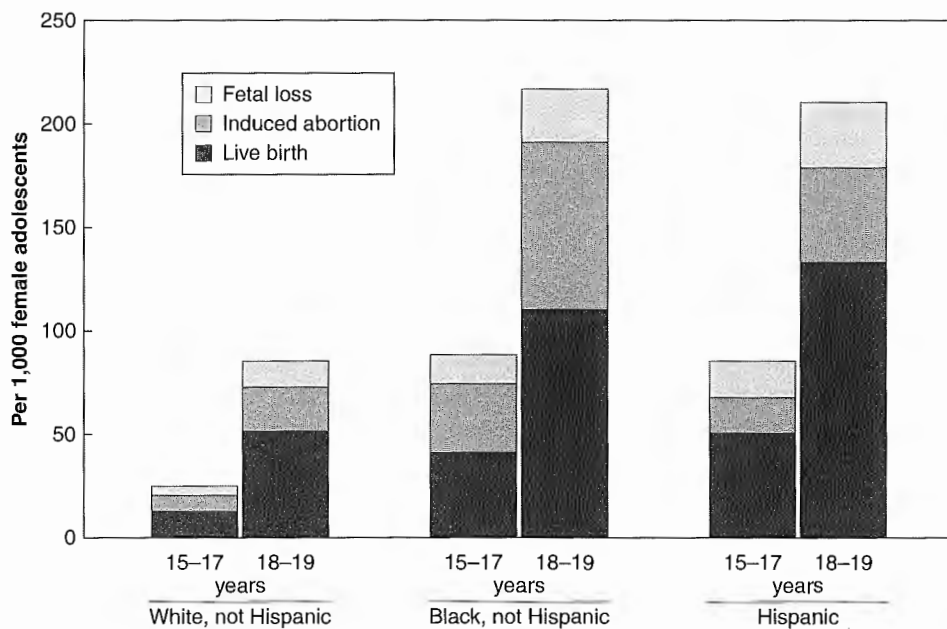


Fig. 20.1: Pregnancy rates among adolescents 15-19 years of age, race and Hispanic origin, and outcome of pregnancy: United States, 2002.

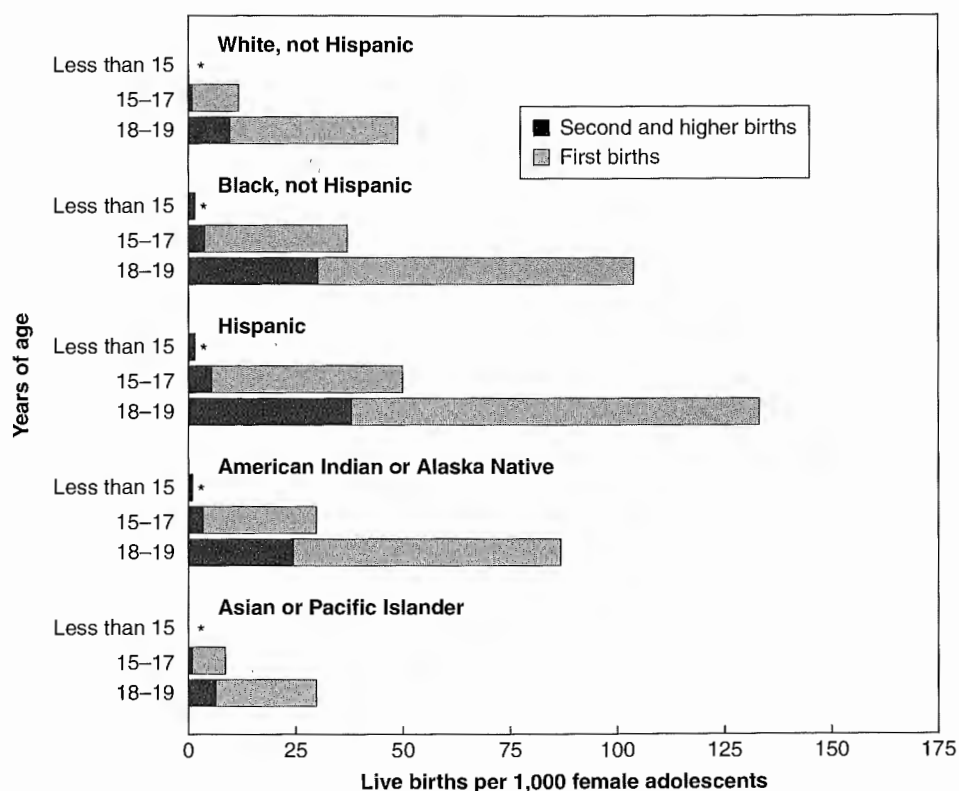


Fig. 20.2: Birth rates among adolescents 10–19 years of age, by birth order, age group, and race and Hispanic origin: United States, 2004.

The 2002 birth rate of 40 per 1,000 females aged 15 to 19 years (49.6 in 1999) in the United States is the highest among developed nations; the rate is 5 per 1,000 in Japan, 6 per 1,000 in the Netherlands, 20 per 1,000 in Canada and 31 per 1,000 in the United Kingdom (10,7). The abortion rate per 1,000 females (15 to 19 years of age) is 36 in the United States and is higher than the pregnancy rate in many countries (such as France, the Netherlands, and Sweden) (11).

Sexual activity rates among adolescents are not higher in the United States versus Western Europe. However, access to comprehensive sexuality education and availability of contraceptives is higher in Europe. Approximately half of adolescent pregnancies occur within the first 6 months after beginning sexual intercourse, and American adolescents typically wait 1 year or more after starting sexual intercourse before seeking advice about effective contraception.

20.2 Risks of adolescent pregnancy

In general, the obstetric risks for adolescents who are pregnant are similar to those of adults, if comprehensive prenatal care services are provided early and throughout the pregnancy (9,12). ▶Tab. 20.1 presents a comprehensive checklist for providers

Tab. 20.1: Checklist for adolescent pregnancy.

Determinations: Initial visit

- Complete blood count
- Complete urinalysis
- Blood type and group
- VDRL
- Culture for *Neisseria gonorrhoeae* *Chlamydia trachomatis*
- Other STI screens (e.g. HIV)
- Pap smear
- Sickle-cell test
- Nutritional status evaluation
- Rubella titer

Discussion points with each visit: Suggested schedule

- | | |
|---|---------------|
| • Anatomy and physiology of pregnancy | First visit |
| • Assess safety in her home | First visit |
| • Sexual activity and STIs | Second visit |
| • Substance abuse-related problems | Third visit |
| • Nutrition | Fourth visit |
| • Contraception | Fifth visit |
| • Childbirth phenomena | Sixth visit |
| • Infant care | Seventh visit |
| • Contraception | Eighth visit |
| • Repeat of appropriate issues | Ninth visit |
| • Importance of follow-up care: patient and child | Tenth visit |

Visitation

- Biweekly until 34 weeks
- Weekly until delivery

Educational aspects: Progress report of teacher

- In school
- Homebound
- Other

Social aspects: Progress report

- Parent-patient
 - Patient-father of the child
 - Postdelivery: Progress report
-

(Continued)

Tab. 20.1: Checklist for adolescent pregnancy. (*Continued*)

Psychological aspects
Nutritional aspects: Progress report
Nursing report
Report of neonatologist or physician who will be present
Additional problem areas: Such as risk for HIV infection or group B streptococcus

Abbreviations: VDRL = venereal disease research laboratory (test); STI = sexually transmitted infection; HIV = human immunodeficiency virus.

Source: Reprinted, with permission from Greydanus DE, Shearin RB. Adolescent sexuality and gynecology. Philadelphia: Lea & Febiger, 1990:218.

to follow when caring for pregnant adolescents throughout the 9 months of pregnancy.

If prenatal care is not available at all, if it is started late in the pregnancy or is not comprehensive, or if the adolescent fails to seek out such care (out of shame, for example), her risks increase, leading to a two to four times increase in maternal mortality in youth versus adults.

The following box reviews global maternal mortality statistics (1,2,10). Maternal preeclampsia may be more prevalent due to births occurring from 15 to 19 years of age. Stillbirths, spontaneous abortions, and premature labor are reported at increased rates because of limited access to comprehensive health care, low socioeconomic status, increased parity, and low educational level (7). In contrast to nonprimiparous females, primiparous teens and adults have increased risk for such problems as chronic hypertension, preeclampsia, and eclampsia. Pregnant adolescents are more likely to be anemic than adult pregnant women. Adolescents who are less than 15 years of age may not be fully developed, and a small size of the uterus may lead to obstetric risks. In addition, the ongoing growth of the young adolescents may interfere with nutritional needs to the fetus.

Global maternal mortality (1,2,10)

Nearly 600,000 females die each year from pregnancy and childbirth; most of these deaths are in the developing world:

1. 227,000 maternal deaths in South Central Asia
2. 56,000 in Southeast Asia
3. 16,000 in West Asia
4. 24,000 in East Asia
5. 235,000 in Africa
6. 4,000 in the developed countries.

Though nearly 40 percent of American youth live in low-income families, 83 percent of adolescents who deliver and 61 percent of adolescents who have an abortion grow up in low-income families. Youth who are substantially below the poverty line have a

significantly increased risk for adolescent pregnancy (13). In the 1990s, it was estimated that \$5–9 billion was spent annually through the Aid for Dependent Children (AFDC) program for households headed by females who become parents as teens (6). AFDC program costs have declined in direct proportion to the reduced teen pregnancy rate that has developed as the twenty-first century has begun. Youth who are adolescent parents have increased risks for obtaining a limited education and, therefore, not climbing out of poverty as either adolescents or adults; have limited employment as adults; and have increased rates of substance abuse and becoming involved in illegal activity leading to incarceration. If adequate contraception is not provided or accepted, adolescent teens have greater risks for additional pregnancies prior to adulthood, leading to even greater psychosocial complications.

Adolescent mothers usually do not marry because of pregnancy, and if they do, higher divorce rates (70%) are noted than in adults (50%). In 1960, 15 percent of U.S. adolescent females who were pregnant were unmarried, in contrast to 80 percent in 1999. Pregnancy is not a major stimulus toward teen marriage in contemporary American society. In fact, the teen mother often has limited contact with and limited support from her baby's father.

Clinicians should understand that sexual abuse and teen pregnancy are linked behaviorally. Some adolescent pregnancies are the result of sexual abuse, and if the abuse does not result in pregnancy, sexually abused children and teens are at risk for early coital activity and pregnancy in the postabuse adolescent years. As many as 66 percent of pregnant adolescents report histories of sexual abuse and pregnancies that may be a direct result of rape, indicating that a past history of sexual abuse is a dominant warning sign of early pregnancy if not attended to by health care providers (14). Adolescents who have been sexually abused may have increased motivation to become pregnant, sometimes because of fertility concerns. Prostitution may become another sequel to early sexual abuse and early teen pregnancy. Depression, substance abuse, and multiple sexual partners are also linked to early adolescent pregnancy.

20.3 Risks for children of adolescents

More than 4 million newborn babies die each year globally, often because of limited prenatal services provided to the mother (1,15). The neonatal mortality rate in the United States has dropped over the past several decades and overall is now 6.9 per 1,000 live births; this rate is nearly double for all youth under age 15 and for all African American adolescents. Low birth weight (i.e. under 2,500 grams at birth) is a major determinant of increased infant mortality, which is noted in 14 percent of first-born infants with mothers under the age of 14 years old, while less than 6 percent of first-born infants are under 2,500 grams at birth if their mothers are 25 to 29 years of age. In short, infants of teen mothers are usually smaller at birth and have an increased death risk, in contrast to those of adult mothers. In addition, prematurity is reported in 14 percent of infants whose mothers are less than 15 years of age, in stark contrast to 6 percent whose mothers are 25 to 29 years of age.

The following box reviews factors associated with low birth rate, prematurity, and increased mortality rates in newborns and infants. Infants of mothers 17 years of age

and less (whatever their parity) and infants of multiparous mothers who are 18 to 19 years of age have increased risks for death and illness. Increased rates of violence, accidents, and sudden infant death syndrome result in mortality rates that are nine times higher in infants with adolescent mothers versus adult mothers. Adolescent mothers' infants, in contrast to infants of adult mothers, are hospitalized more often and have greater risks for poisonings, burns, and other injuries.

Factors associated with increased newborn/infant mortality rates (1,2,10)

- Adolescent age
- Limited prenatal care
- Poverty
- Poor nutrition
- Incomplete pubertal growth
- Reduced family support
- Limited education
- Drug abuse (including alcohol and tobacco)
- STIs

Children of adolescent mothers, in contrast to children of mothers in their twenties or thirties, are more likely to have academic dysfunction, drop out of school, become unemployed as adults, become incarcerated, and become teen parents themselves. Children of teen mothers also tend to be more neglected than children of adult mothers, probably because the young mother is not aware of her child's needs. This neglect does not necessarily lead to increased rates of sexual abuse, but more likely, to a variety of problems in school and society (see the following box, "Potential Problems That Are Increased in Children of Teen Mothers").

Potential problems that are increased in children of teen mothers (1,2,10)

- Lower intelligence
- Lower reading ability
- Lower communication scores
- Increased developmental delay
- Increased hyperactivity and impulsiveness
- Lower school performance
- Increased teenage pregnancy
- Increased STIs

These young mothers usually have poor parenting skills and often provide improper discipline. Many of these negative psychosocial risks can often be avoided if clinicians and society cooperate to improve access to quality health care (for the mother and

child) and encourage further adolescent education, counseling, and medical care. Higher school completion rates increase when youth grow up in a small family and have parents who are educated and employed – especially the mother (16).

20.4 Adolescent fathers

Approximately two-thirds of adolescent mothers have sexual partners who are older than 20 years of age, often 6 or more years older than themselves. This older partner may subject the younger female to sexual abuse and other forms of relationship violence. The adolescent male who is a father frequently has a history of a troubled childhood, limited financial resources, a poor academic record, and an elevated rate of dropping out of school (6). He often has limited education about methods of contraception and in accepted roles of fatherly caretaking. In addition, the adolescent father may receive a negative reception from the mother's family and often has limited access to comprehensive medical care for either himself or his new family. However, some fathers want closer ties with their children, if provided the opportunity, encouragement, and education.

20.5 Abortion

The issue of abortion remains a polarizing concept in the United States since the 1973 U.S. Supreme Court decision allowing legal abortion (6). In addition to a variety of surgical techniques, so-called medical abortion is also available using a combination of mifepristone (RU 486; progesterone antagonist) and methotrexate (folic acid antagonist) (6,9,16). Medical abortions can be legally accomplished up to 63 days (9 weeks) from the first day of the last menstrual period. Up to 97 percent of these females will abort within 2 weeks, and 1 in 20 will need a surgical procedure (dilation and curettage) to complete the abortion. Potential adverse effects from the medications used for medical abortion include nausea, emesis, fever, chills, diarrhea, infection, heavy bleeding, and possible teratogenicity if delivery occurs. Potential adverse psychological effects from abortion in adolescent females remain a controversial topic with most research showing minimal outcomes in those prepared for and clearly choosing the abortion (9). Prevention of unwanted adolescent pregnancy and abortion should be a major public health priority of all clinicians and society.

20.6 Prevention of adolescent pregnancy and pregnancy complications

The prevention of pregnancy that is unwanted by the adolescent remains a complex challenge for contemporary American society (2,17,18). Reduction in unplanned adolescent pregnancies is a goal of the Centers for Disease Control Healthy Peoples 2020 Project (<http://www.healthypeople.gov>; www.healthyteenetwork.org). Currently, American adolescents receive limited comprehensive sexuality education, and the effectiveness of abstinence-only education has not been established (6,17). Adolescents can be encouraged to avoid coital behavior, and those who wish to be sexually active should

be provided with effective contraception, including emergency contraception. If pregnancy occurs in an adolescent, legal options can be explored with her, including delivery and keeping the baby, delivery and adoption, and abortion. If the adolescent decides to deliver the baby, early and comprehensive health care is important for the pregnant adolescent to reduce her risks for negative outcomes.

Prevention of additional unwanted pregnancies while she is an adolescent is also important; 35 percent of adolescents with a pregnancy have a repeat pregnancy in 2 years, while 20 percent have a second delivery (2,15). The adolescent is more likely to repeat her pregnancy early after her first pregnancy if she lives with her male partner (married or not), does not attend school within a half-year after delivery, and/or if her mother is the main caretaker of the baby (19). Comprehensive care is also critical for the children of adolescent mothers to reduce their risks for adverse psychosocial complications (see the previous box, "Potential Problems That Are Increased in Children of Teen Mothers"). The medical and psychosocial needs of the teenage father should also be addressed.

As noted, there is no current evidence that abstinence-only programs are effective in reducing adolescent pregnancies, and the decrease in adolescent pregnancies over the past decades is attributed to the combination of fewer teens interacting sexually and more effective use of contraception by those adolescents who are sexually active (6,8). Though society wishes to reduce adolescent pregnancy further, it is an accepted phenomenon in many adolescent cultures (15). Since we know that the higher the socioeconomic status of adolescents, the more likely they are to delay initiation of coitus and to use effective contraception, raising the educational levels of adolescents globally has contributed to a reduction in adolescent pregnancy in the world by decreasing the number of adolescents living in poverty.

20.7 Mental health

Sexual activity without use of birth control is associated with higher rates of depression/stress among adolescent females (20). This is consistent with findings from the National Longitudinal Survey of Youth, which indicated that for adolescent girls, having intercourse at an early age, not using birth control, and having a child was linked to depression (21). In depressed adolescent females engaging in sexual intercourse, low levels of emotional well-being is associated with a prior history of sexual abuse, substance abuse, and parents that may have experienced mental health issues leading to a lack of attention and nurturance toward the adolescent females (22,23).

Poverty is correlated significantly with pregnancy in the United States. Although 38 percent of adolescents live in poor or low-income families, as much as 83 percent of adolescents giving birth and 61 percent of those choosing abortions live in poor or low-income families (23,24). Impoverished families are often fraught with overt family conflict; low levels of child-parent nurturing; and cold, unsupportive, and often neglectful familial relationships. Families with these characteristics leave their children vulnerable to a wide array of mental health disorders, such as depression, and significant psychosocial stressors, including adolescent pregnancy (25).

Poverty, sexual and physical abuse, and poor mental health are intricately related to adolescent pregnancy and childbearing. The medical and mental health needs of these

young families are complex and challenging for the pediatric provider. Foci of clinical treatment include: (a) continued emphasis on the adolescent development of the pregnant teen; (b) access to appropriate, integrated mental health care throughout and beyond the pregnancy; (c) using knowledge of adolescent development to maximize the resilience of youth and the hope of beginning motherhood to compensate for the adolescent's lack of experience or social emotional maturity.

20.8 Conclusions

The number of pregnancies among adolescents has dropped over the past few years. A false sense of security that adolescent pregnancy is no longer a global social and medical problem, however, will only hinder the continued, necessary interventions that are paramount to continuing the decrease in pregnancies, infant mortality, poverty, education, and generational patterns of early pregnancy that are, in some countries, culturally bound.

Understanding the etiology and prevalence associated with adolescent pregnancy is only part of the solution. Health care providers must continue to expand their efforts at beginning comprehensive and constant prenatal care early in the pregnancy. Easy access to health care, well-informed and well-trained providers, as well as community and family support for pregnant adolescents are integral to eradicating the associated health issues of adolescent pregnancy.

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