• REVIEW •

Determinants, Outcomes and Interventions of Teenage Pregnancy—an international perspective

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Key words: teenage pregnancy; sexual behavior; youth-friendly clinic; sexuality education

Teenage pregnancy (defined as pregnancies occurring in women aged 19 or under¹¹) is a big public health problem worldwide. According to the United Nation’s report, among 132 million babies born worldwide each year, about 14 million babies (10.6%) are born to adolescent mothers²². In Britain, teenage pregnancy has been labeled alongside cardiovascular disease, cancer and mental health as major public health problem⁹⁹. The Nordic Resolution on Adolescent Sexual Health and Rights counts as a measure of public health success the fact that the numbers of teenage pregnancies in the Nordic countries are among the lowest in the world¹⁰. Maybe the study designs and samples are different, and they may not represent adolescents as a whole, but they do give us some hint for the general trend of sexual behaviors of adolescents all around the world.

Sexual behavior of adolescents

Several reports from different parts of the world indicate that sexual activity is very common among some adolescents and is initiated in the early teens. In USA, about 5%-10% of females have had intercourse by age 13, and about 70%-80% have by age 19¹¹. In Northwest Tanzania, the age at first coitus is 12.0 years for boys and 13.5 years for girls¹². In Dunedin, New Zealand, one study showed that 27.5% of male and 31.7% of female school students reported first sexual intercourse before age 16¹³. Data also demonstrate that some adolescents engage in risky sexual behavior including

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multiple sexual partners and lack or inconsistent use of condoms. A 1992 survey in western Canada found 33% of boys and 30% of girls aged 17 had four or more partners, only 57% of boys and 45% of girls used a condom in the last time they had sexual intercourse. Other surveys from North America indicate that range of percent for risky behavior is around or above 50% of the adolescents. Data from 20 countries indicates that many sexually active adolescents have had sex with more than one partner, though there is disparity between the genders and between studies. This situation increases the risk for unwanted pregnancies, STIs and HIV infections.

Factors associated with adolescent sexual intercourse and teenage pregnancy

Social norms and values

Societies have “rules” about the sexuality of young people. Most discourage premarital sexual activity and childbearing outside marriage. But the Western countries accept that adolescents, especially older teens, may be sexually active, which lead to the overall increase in early sexual intercourse. In some cultures during their development from boyhood to man, adolescent males are often expected to prove their “masculinity” to their peers or elders. In some African societies, the norms expecting adolescent girls to be sexually active are so strong that virgin girls tend to be marginalized, not only by males, but also by other females. Some schoolgirls in African countries keep relationships with “sugar daddies”, older, wealthy men, who provide assistance with school-related expenses and material goods. About one in five school-going and out-of-school adolescent females (as young as 13) in Botswana have engaged in sex with “sugar daddies”.

Family and peer factors

Family and peer factors all may influence the age of initiation of sexual intercourse. Liberal attitudes of peers could have contributed to the adolescent’s sexual behavior. The adolescents may have perceived friends’ attitudes as similar to their own in order to rationalize their behaviors. Miller found several familial factors related to higher risk of pregnancy: living with a single parent, having older siblings, and parents’ low social-economic status. As single parenthood may act through low parental control or connectedness, it fits other studies that connectedness is related to lower pregnancy risk mainly through postponement of intercourse; on the other hand, overly controlling or intrusive parental control appears to be related to higher risk of adolescent pregnancy. Otherwise, the lower age at first intercourse may be partly a cohort effect related to high rates of teenage childbearing in the mothers’ generation. Mothers’ young age of first intercourse predicts their children also have sex before age 14.
Self-efficacy

Self-efficacy is a person's beliefs about his or her ability to attain particular goals. Lawrence[17] found that low self-efficacy is associated with low levels of social support for teens. These teens were more likely to engage in casual sex, to have more non-monogamous partners, to be victims of coercive sex, and to have higher rates of sexually transmitted disease than were adolescents with higher levels of social support (and perhaps higher levels of self-efficacy). Another longitudinal study[18] showed that there is a strong association between low self-efficacy and history of teenage pregnancy among high school students.

Psychiatric disorders and history of sexual abuse

Adolescents with psychiatric disorders are at higher risk of teenage pregnancy. Psychiatric disorders are consisting of anxiety, affective and conduct disorders, and addictions were positively related to subsequent teenage pregnancy in females, with addictive disorders being the strongest predictors[19]. School dropout, conduct disorder and substance use disorder were also found to be significant predictors of adolescent pregnancy[20, 21]. Male teenage premarital parenthood was significantly associated with conduct disorder[22].

Teenaged girls who had been sexually abused were found having more sexually permissive attitudes, and they were significantly more likely to engage in voluntary sexual intercourse, younger at first intercourse, and had intercourse more frequently[22].

Limited access to information

Adolescents often do not have access to sufficient and correct information. Generally, adolescents cite friends as their most common source of information about sexuality[23]. A study in USA[24] shows one-third of teens get their information from friends who are often poorly informed, 13.0% and 6.9% from parents and teachers respectively. They also had poor knowledge of topics such as the fertile time of the cycle, contraceptive safety and side effects, and STIs. And they do not know how to obtain such information and services[25]. Decisions to engage in unsafe sex may be based on inadequate knowledge about the risks of pregnancy and sexually transmitted infections[26].

Inadequate access to youth-friendly services

Adolescents are no longer qualified for pediatric services and their health problems are not like those of adults. They require specially trained health personnel. Developed countries have made great efforts to improve adolescents’ access to youth-friendly services in recent decades. But health systems in developing and underdeveloped countries generally do not specifically address adolescent needs and adolescents often feel uncomfortable visiting clinics designed for adults. The highest level of access in African countries is found in Mauritius (75%), but in Nigeria, Sudan, Tanzania and Zambia, only 7%-24% of the adolescents’ demand for family planning services has been satisfied[25]. Studies from Nigeria showed that community sexual and reproductive health (SRH) services for adolescents is limited and attitude of service providers were often hostile or unrealistic[25, 26].
Consequences of adolescent sexual behaviors

Teenage childbearing

Adolescents who become pregnant may not seek proper medical care, and their bodies may not be physically mature enough to handle the stress of pregnancy and childbirth, leading to an increased risk for medical complications. Women aged 15-19 have up to three times the maternal death rate as those aged 20-24; they are especially likely to suffer from pre-eclampsia and eclampsia, obstructed labor, and iron deficiency anemia. Unintended childbearing can result in low birth weight infants and preterm delivery, and has an associated higher infant mortality rate.

Teenage childbearing not only bring heavy burden to the society as a whole, but also has long-term adverse outcomes on children. Studies show teenage motherhood is positively associated with low educational attainment, with single living arrangements, with high parity, with collecting a disability pension, and with welfare dependency. Children of adolescent mothers are more likely to live in less stimulating environments and are more likely to be at risk for abuse and neglect than children born to elder mothers, female children are more likely to be teenage mothers again.

Adolescent sexual behaviors and abortion

Abortion is a very safe procedure, but it is still risky for adolescents. Most states in the USA require women under 18 to obtain the consent of or notify one or both parents prior to an abortion. In fear of parental notification, adolescents are more likely to resort to unskilled practitioners or to delay seeking a pregnancy termination than the elder women, and the probability of complications and death increases with the length of gestation (≤ 8 weeks and 16-20 weeks, fatality rate is 0.4 and 7 per 100,000 abortions, respectively). WHO characterizes unsafe abortion by lack of skilled providers, safe techniques, and/or sanitary facilities. A study in Nigeria found that 72% of all deaths among teenage girls are due to consequences of unsafe abortion. Moreover, young women who survive through unsafe abortion may suffer complications leading to infertility. Even in settings where abortion is legally available, shame and lack of knowledge may combine to constrain young women from seeking timely and safe abortion. For example, 9% of abortion-seekers in the Republic of Korea reported post abortion complications.

Adolescent sexual behaviors and STDs/HIV/AIDS

It is estimated that adolescents experience nearly 4 million of the 15 million cases of STDs in the USA, and one in four sexually active adolescents will contract an STD before graduation from high school in USA. STDs can lead to infertility, ectopic pregnancy, cancer, and numerous other health problems. They can also increase the chances of HIV infection and transmission.

In Mozambique, 74% of girls and 62% of boys aged 15-19 are unaware of any way to
protect themselves; half of the teenage girls in sub-Saharan Africa do not realize that a healthy-looking person can be living with HIV/AIDS. Almost two-thirds of sexually active girls aged 15-19 in Haiti do not believe they run the risk of HIV infection; more than half of their Zimbabwean counterparts share that perception.

Biological, social and economic factors make teenage girls especially more vulnerable to HIV. A relationship with a "sugar daddy" tends to increase a woman’s risk of HIV infection, because the "sugar daddy" is relatively old and tends to have had several sexual partners. Through sub-Saharan Africa, HIV infection rates among girls are over five times higher than rates for boys. Among pregnant teenagers in South Africa, HIV prevalence level was 15.4% in 2001.

Promotion of adolescent sexual and reproductive health

In many countries, the topic of adolescent sexuality and reproductive health is politically and culturally sensitive; as a result, reproductive health information and services do not reach most youth.

Nordic countries like Denmark, Iceland, Finland, Norway and Sweden started to initiate comprehensive sexuality education programs since the 1960s. They recognized that young people do have sexual lives, promoted good sexuality education and skills that empower young people, and provided high quality services for young people. Their experiences show that accepting the fact that young people are sexually active, and granting young people education, freedom and rights enable them to make informed choices and take responsibility for their own sexuality. They have achieved impressive results with the lowest number of teenage pregnancies in the world, a low rate of HIV/AIDS and STIs, high rate of contraception use. Improving access to health education and reproductive health services is therefore seen as the principal way to reduce teenage pregnancy.

The influence of sexuality education on adolescent sexual behavior

There has been contention that sexuality education encourages experimentation or increases sexual activity. Some studies delayed the onset of sexual activity, reduced the number of sexual partners, or reduced unplanned pregnancy and STD rates, but Grunseit reviewed 52 studies from different countries and concluded that HIV/AIDS and sexuality education neither increased nor decreased sexual activity and rates of pregnancy and STIs. Eun Young Song used meta-analysis to analyze and synthesize findings from selected studies from 1960 to 1997 and demonstrated the effectiveness of sexuality education in changing adolescents’ knowledge about sexuality.

Changes in knowledge and attitudes are not strongly associated with changes in adolescent sexual behavior, which is the primary concern of most prevention efforts, but they are believed to be the necessary precursor, and adolescents need basic information to assess risks and avoid unprotected sex. Great knowledge about condom and other contraception
has been found to be related to behavioral change among adolescents [45, 46].

The role of health services

Adolescents need, want and should have a right to reproductive and sexual health services. Ignoring their sexuality will not make their problems go away. It simply leaves them vulnerable to unwanted pregnancy, unsafe abortion, and STIs/HIV. Information and education should be linked to the provision of sexual and reproductive health services, otherwise adolescents who receive information will not be able to access the services they need or receive necessary care.

Early in 1986, the Alan Guttmacher Institute suggested that family planning services for adolescents must be put into the context of the health care system [47]. And provision of information and services could yield significant gains in reducing unplanned pregnancy and births among adolescents [48].

Youth-friendly clinic as a model health service

Adolescents have specific needs for information and services that adult-centered clinics do not provide because health personnel have not been trained to provide appropriate services for them. If a teen-age girl has to face an abortion, the doctor’s responsibility is not only to perform an operation but to help her face the situation with a positive attitude. This is one kind of ability beyond general medical treatment, and this is the real purpose behind the special outpatient service. In 1994, the International Conference on Population and Development (ICPD) stressed the need to “protect and promote the right of adolescents to the enjoyment of the highest attainable standard of health, provide appropriate, specific, user-friendly and accessible services to address effectively their reproductive and sexual health needs, including reproductive health education, information, counseling, and health promotion strategies” [49].

Barriers for adolescents to access family planning services were: provider aversion to provide reproductive health services to unmarried adolescents; negative community perceptions of adolescent reproductive health services; long waiting lines, overcrowding, and adolescent embarrassment at being seen at such facilities; fear of incorrect treatment; and fear that privacy and confidentiality would not be honored. Other barriers, such as lack of transportation and high cost of services, also were found to prevent adolescents from receiving services [50]. So the ideal family planning services for adolescents should include: multidisciplinary staff who are friendly and non-judgmental; continuity of care; counseling to be included in the family planning visit; outreach efforts by staff to inform teenagers regarding the services; the location of services close to teenagers’ residences or schools; flexible hours; and low cost for services [51, 52].

Effectiveness of school-based sexuality education program

There are mainly 4 kinds of school-based sexuality education program: abstinence-only program, abstinence-based HIV prevention and sexuality education program, peer-
education program, and clinic-based service program. Many schools in USA began developing programs to address adolescent sexuality during the 1970s. Most published evaluations primarily determine the impact of programs based on three goals: (1) Delaying the onset of sexual intercourse; (2) Increasing contraceptive and condom use; (3) Decreasing pregnancy rates.

Abstinence-only program

Begun in the late 1980s in the USA, it emphasizes that abstinence is the only appropriate choice for adolescents. Typically, these programs either do not discuss contraception at all or briefly discuss contraceptive failure to provide complete protection against pregnancy and STDs.

Findings on the effectiveness of abstinence-only programs have been mixed. There is some evidence that making a pledge to remain abstinent may help prevent some youth from initiating sex [53]. But in Kirby's 1994 [44] review, it showed none of those abstinence-only program found consistent and significant effects on delaying the onset of intercourse, and at least one study provided strong evidence that the program did not delay the onset of intercourse. Other studies [54, 55] showed the impact of the abstinence-only programs is not conclusive and measurable.

Abstinence-based HIV prevention and sexuality education program

Abstinence-based sexuality education programs typically include not only abstinence but also discussions of different methods of contraception, while the AIDS education programs typically include discussions of condoms. No easy answers, a report commissioned in 1997 by the National Campaign to Prevent Teen Pregnancy, concluded that sexuality and HIV education curricula do not hasten the onset of intercourse, do not increase the frequency of intercourse, and do not increase the number of sexual partners [56]. Kirby [54] reviewed other sex and HIV education programs and concluded it didn’t significantly increase any measure of sexual activity, may delay or reduce sexual intercourse among teens. These results are consistent with reviews of programs evaluated in other countries; and sex and HIV education programs can reduced unplanned pregnancy and STD rates [41, 42].

Peer-education program

Peer educators/counselors are not professionals. They receive special training in decision-making, in making client referrals, or in providing commodities or services to assist young people who need reproductive health information and services.

Peer education program provides teens with positive peer support, acceptance, and respect in their efforts to prevent risk behaviors. One study found peer-based interventions decrease the incidence of unprotected sexual intercourse, the frequency of sexual intercourse, and the number of sexual partners, and increase teen’s acquisition and use of condoms [57]. Peer education is most effective at improving knowledge and promoting attitudinal and behavioral change among teens in school settings [58]. Adolescents prefer to receive
reproductive health information from peers rather than from adults, because peers share similar life experiences may be critically important in the success of strategies to change attitudes and behaviors.

**Clinic-based service programs**

Strengthening connection between sex education and family planning services may bridge knowledge and attitudes with action. They have more effectively influenced contraceptive behavior outcomes than non-clinical programs, and clinic programs have more impact on reducing pregnancy rates [59]. School-based clinics and school-linked clinics help to delay the onset of sexual intercourse among those youths who had not yet initiated sex, and didn’t increase the frequency of intercourse among teens who do have been sexually active [60, 61], because school-based or school-linked clinics can facilitate students’ access to the SRH services.

Improving adolescents’ access to SRH information and “youth-friendly” health services was proved to have made important contribution to promote adolescent SRH worldwide, especially in Nordic countries.

**References**


(Received on November 27, 2003)