Sexual Initiation, Contraceptive Use, and Pregnancy Among Young Adolescents

abstract

OBJECTIVE: To present new data on sexual initiation, contraceptive use, and pregnancy among US adolescents aged 10 to 19, and to compare the youngest adolescents’ behaviors with those of older adolescents. 

METHODS: Using nationally representative data from several rounds of the National Survey of Family Growth, we performed event history (ie, survival) analyses to examine timing of sexual initiation and contraceptive use. We calculated adolescent pregnancy rates by single year of age using data from the National Center for Health Statistics, the Guttmacher Institute, and the US Census Bureau. 

RESULTS: Sexual activity is and has long been rare among those 12 and younger; most is nonconsensual. By contrast, most older teens (aged 17–19) are sexually active. Approximately 30% of those aged 15 to 16 have had sex. Pregnancy rates among the youngest teens are exceedingly low, for example, ~1 per 10,000 girls aged 12. Contraceptive uptake among girls as young as 15 is similar to that of their older counterparts, whereas girls who start having sex at 14 or younger are less likely to have used a method at first sex and take longer to begin using contraception. 

CONCLUSIONS: Sexual activity and pregnancy are rare among the youngest adolescents, whose behavior represents a different public health concern than the broader issue of pregnancies to older teens. Health professionals can improve outcomes for teenagers by recognizing the higher likelihood of nonconsensual sex among younger teens and by teaching and making contraceptive methods available to teen patients before they become sexually active. 

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KEY WORDS: adolescents, contraceptive use, sexual activity, teen pregnancy

ABBREVIATION
NSFG—National Survey of Family Growth

Accepted for publication Jan 17, 2013
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FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: Supported by grant 1 R01 HD059896 from the US National Institutes of Health. Funded by the National Institutes of Health (NIH).
The sexual and reproductive behavior of adolescents has long been a focus of public discourse in the United States. Public health professionals have generally focused on the negative sequelae of teen pregnancies and births, and developed strategies to reduce teen sex and increase contraceptive use. Others have taken a more holistic approach toward sexuality and sexual behavior, arguing that Americans’ stigmatization of all adolescent sexuality contributes to our relatively high teen pregnancy rate.1

Despite substantial declines in adolescent pregnancy over the past 2 decades, teen sex remains a prominent bogeyman, as there is a broad public perception that a substantial proportion of young adolescents are sexually active. In 1998, the most recent survey to pose the question revealed that two-fifths of Americans thought that most young people have sex by age 14, and a quarter thought most have sex by age 13.2 Many also believe adolescents should not have access to contraception. In a 2007 poll, 46% of Americans said providing teens with birth control would encourage sexual behavior; 54% believed teens should not be allowed access to contraception until ages 16 to 19, and 6% believed young people should not be allowed to obtain birth control at all.3

Recent public policy debates on access to contraception have drawn attention to the behaviors of young adolescents. For example, in overturning the US Food and Drug Administration’s 2011 recommendation to make the emergency contraceptive pill Plan B available over the counter to people of all ages, Department of Health and Human Services Secretary Kathleen Sebelius and President Barack Obama cited concerns about the fertility of 10- and 11-year-olds and the propriety of these young adolescents having access to the method,4 despite evidence that Plan B is safe for women of all ages5 and that teenage women can follow the instructions for emergency contraception at a level equal to adult women.6,7 These comments imply that their speakers believe there is a substantial level of sexual activity among 10- and 11-year-old girls.

Past work has examined the sexual and reproductive behavior of adolescents 14 and younger,8 but those publications are based on data from the late 1990s, and none of them presented information on the youngest adolescents (those 12 and younger). In this article, we make use of newly available public data sets and have sought additional data to make updated and more precise estimates of sexual activity, contraceptive use, and pregnancy rates among the youngest adolescents as well as older teens.

METHODS

Sexual Activity

We used age at first heterosexual vaginal intercourse as our measure of sexual activity. To look at the timing of sexual initiation, we used data from several waves of the National Survey of Family Growth (NSFG), a nationally representative survey of women and men aged 15–44, conducted by the National Center for Health Statistics, that is arguably the best source of information on sexual activity, partnership patterns, contraceptive use, and childbearing in the United States. We initially used data from the 1984–1993 birth cohorts, comprising 3242 females and 3104 males. The NSFG asks its respondents to indicate the month and year in which they first had sex, as well as birth month and year. We performed event history analyses (specifiically, Kaplan-Meier life-table analyses), which allow one to incorporate the experience of all respondents, including those who reached the interview without having had sex. We used these methods to determine the proportion of individuals who had had sex by each exact age (ie, by a particular birthday) for both females and males.

We also examined a related measure, the proportion of individuals of each (current) age who had had sex. For example, the group “14-year-olds” includes individuals ranging from 14 years and 0 months old to 14 years and 11 months old, so to determine the number of 14-year-olds who had ever had sex, we calculated the proportion of people who had had sex by age 14 years and 0 months, the proportion who had had sex by age 14 years and 1 month, and so on through 14 years and 11 months, and averaged these 12 proportions.

Based on evidence that the youngest adolescent age group (aged 14 and younger) is at greatest risk of experiencing sexually violent crimes,9 we also examined the relationship between timing of sexual debut and whether the first sexual experience was voluntary among a recent cohort of women. Because the male data set did not include the necessary variable, this part of the analysis was restricted to females. We calculated the proportion who reported that their first sex was non-consensual (among those who had had sex by each exact age), using data from the 1984–1993 birth cohorts in the 2006–2010 wave of the NSFG. We used 1-year age categories up to age 12, and larger age groups up to age 20 to reduce random variation.

To look at trends over time in age at first sex, we used the 1988, 1995, 2002, and 2006–2010 rounds of the NSFG. We separated the female NSFG respondents into birth cohorts from 1939 to 1991 and calculated the ages by which 10%, 25%, 50%, 75%, and 90% of each cohort had had sex; these results were again based on Kaplan-Meier life tables.

Contraceptive Use

Most Americans initiate sex during their teen years,10 and among teens,
the large majority of pregnancies are unintended.11,12 In addition, contraceptive use at first sex has been recognized as an indicator of later consistency of use.13 Because of this, we examined the interval of time between first sex and first contraceptive use. We included all contraceptive methods reported by respondents, including hormonal methods, barrier methods, withdrawal, and periodic abstinence. We calculated the proportion of individuals whose first contraceptive use occurred in the same month as (or before) their first sex; for those who did not use contraception at first sex, we looked at how long it took them to initiate contraceptive use. Because our primary interest in this work was the impact of age at first sex on time to contraceptive initiation, we performed this analysis separately by single year of age at first sex.

Pregnancy and Pregnancy Outcomes

Finally, we calculated pregnancy, birth, and abortion rates by single year of age at pregnancy outcome for 2008. Pregnancies include births, abortions, and fetal losses. To make these calculations, we combined data on births from the National Center for Health Statistics and data on abortions from a national census of abortion providers and a nationally representative survey of abortion patients conducted by the Guttmacher Institute. In each case, we used data by single year of age whenever possible. Single-year-of-age breakdowns were not available for abortions to girls aged 12 and younger, so we distributed them in the same ratio as births. Fetal losses were estimated as 20% of births plus 10% of abortions, a convention used when empirical data are not available.14 To calculate rates for each age group, we summed births, abortions, and fetal losses, and then divided by age-specific populations. Denominators for rates were based on population estimates produced by the

Census Bureau in collaboration with the National Center for Health Statistics for July 1, 2008.15 Additional details on this methodology are available elsewhere.12 Additionally, we calculated the pregnancy rate for sexually active teens by using the same number of pregnancies in the numerator, but using a population denominator that included only teens of that age who had ever had sex, based on reports in the NSFG.

RESULTS

Sexual Initiation

Reports from women aged 15 to 24 at interview in the 2006–2010 NSFG indicate that few young adolescents have had sex (Table 1). The proportion of females who have had sex by the time they reach their 12th birthday is <1%. Measured another way, <1% of 11-year-old girls and ~1% of 12-year-old girls have had sex. Similarly, only 2% and 5% of females have had sex by their 13th and 14th birthdays, respectively. By the middle teens, however, these proportions have increased, but teens who are sexually active remain in the minority: 19% of 15-year-old females and 32% of 16-year-old females have had sex. Some 26% of all women have not had sex by their 20th birthday.

Figures for young males are also low, although slightly higher than for females. Approximately 2% of males have had sex by their 12th birthday, and 5% and 10% have done so by their 13th and 14th birthdays. Among teens aged 15 and older, figures for males at each age are only a few percentage points higher than females: 22% of 15-year-old males and 35% of 16-year-old males have had sex, whereas the proportion of men who have not had sex by their 20th birthday is the same as it is for women.

Table 1 also displays the percent of females who reported that their first sex was nonconsensual among those who had had sex by each birthday. These figures establish that sex among the youngest adolescents is much more likely to be coerced than among older age groups. Sixty-two percent of female respondents who had sex by their 10th birthday reported that their first experience was nonconsensual, compared with 50% of those whose first sex occurred by age 11 and 23% by age 12. This proportion decreases substantially with increasing age at sexual debut: Among those who had sex by age 13 or 14, only 7% reported that their first sex was not consensual, and among those who had sex by age 17 or older, fewer than 5% reported this.

Figure 1 reveals historical trends in the ages by which 10%, 25%, 50%, 75%, and 90% of females had had sex. The 10% line never falls as low as age 14. In other words, at no time in the past 50

<table>
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<th>TABLE 1 Sexual Initiation by Single Year of Age, Women and Men Born 1984–1995</th>
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years was it the case that ≥10% of girls had had sex by their 14th birthday. Figures for older teens are also worth noting. The median age at first sex never fell below 17, and at least a quarter of young adults in all birth cohorts had not had sex by 19. Furthermore, this figure reveals that members of the most recent cohorts are less likely to have had sex (by every age) than those born in the 1970s, indicating that more young people are delaying sexual initiation than in the recent past.

**Contraceptive Use**

Figure 2 indicates the time from women’s first sex to first contraceptive use. The curves do not start at 0%, indicating that substantial proportions of women use contraception in the same month that they first had sex. Thus, for example, 82% of 16-year-olds use contraception at first sex; by 1 year after first sex, 95% of those who had sex for the first time at age 16 have used contraception.

One salient finding from Fig 2 is that teens who initiate sex at young ages take longer to initiate contraceptive use. Only 52% of those starting sex at 12 or younger use contraception during the month of first sex, and figures are relatively low for 13- and 14-year-olds as well.

Among those who initiate sex at age 15, however, contraceptive use patterns are similar to those of women who start having sex at an older age. Eighty percent of 15-year-old sexual initiators use contraception in the same month, compared with 85% of 17- to 18-year-olds. A Cox proportional-hazards regression model comparing age groups (not shown) indicated that the pattern of contraceptive initiation by those initiating sex at 14 and younger was significantly different from those 19 and older, but 15-year-olds and older did not differ significantly from 19-year-olds.

**Pregnancies and Pregnancy Outcomes**

Table 2 reveals that the pregnancy rate among girls 12 and younger is minuscule (and, in fact, the absolute number of pregnancies is also remarkably small). Pregnancies among those 11 and younger are exceedingly rare, and only 1 in ~7000 12-year-olds experiences a pregnancy in a given year. Among girls 13 and younger, the majority of pregnancies (excluding miscarriages) end in abortion, whereas for girls 14 and older, more pregnancies end in birth than abortion; for girls 17 and older, twice as many pregnancies end in birth as abortion. Pregnancy rates among ever-sexually-active girls age 13 and younger are also low, likely due to infrequent sexual activity among the youngest sexually experienced teens.8,16
discuss above, individuals who had
in addition to the issue of salience dis-
here, to be less of a concern than un-
ssexual initiation, the measure studied
surveys, we believe underreporting of
behavior is a concern in all self-reported
experience was coerced is higher than
our data were able to capture.18
Because in this article we define sexual
activity to refer only to heterosexual
intercourse, our results provide a
limited portrait of adolescent sexual
behavior. although this narrow defini-
tion combined with data on contra-
ceptive use provide a basis from which
to draw conclusions about teens’ risks
for unintended pregnancy and paren-
thood, the same cannot be said for
other health outcomes related to sex-
ual activity more broadly defined, such
as sexually transmitted infections.
Finally, our measures of sexual activity
and contraceptive use are based on the
first instance of each, and therefore do
not reflect frequency of sexual activity,
effectiveness of the contraceptive
method, or consistency of contracep-
tive use over time. Nonetheless, we ar-
ge that these events serve as effective
proxies for later behaviors.
Taken together, the findings in this ar-
ticle indicate that sexual activity has
been rare among the youngest ado-
lescents for decades, and pregnancy is
even rarer. Concerns about substantial
levels of sexual activity among young
adolescents are unfounded, and the
pregnancy rate (indeed, the absolute
number of pregnancies) among these
girls is vanishingly small. When it oc-
curs, sexual activity among the youngest
adolescents is frequently of a different
nature than that of middle and older
adolescents, in that it is frequently non-
consensual. Although individual preg-
nancies to girls during that young are significant
events, they arguably represent a dif-
ferent public health concern than the
broader issue of pregnancies to older
adolescents. among young teens, lower rates
of contraceptive use at first sex are
probably due to their lower likeli-
hood of having information about
and access to contraceptive methods.
Substantial proportions, although mi-
norities, of 15- and 16-year-old girls
have had sex. It is these latter teens
who are most at risk for experiencing
an unwanted teenage pregnancy, and
who are therefore most affected by
restrictions, legal or practical, to using
contraception.

conclusions
Pediatricians and other child and ado-
lescent health professionals are well
placed to screen for unwanted sexual
activity among patients of all ages,
with the awareness that sexual activity
among the youngest adolescents is
especially likely to be nonconsensual.
In addition, teaching young adoles-
cents about contraceptive methods
and prescribing or offering methods
before they are likely to become sex-
ually active is prudent: Knowledge of
and access to contraception at an
earlier age would help those ado-
lescents who initiate sex early, and
would likely increase contraceptive
use among older teens as well. No study
of sex education programs to date has
found evidence that providing young
people with sexual and reproductive
health information and education re-
results in increased sexual risk-taking.19
In addition, fears that early exposure

<table>
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<th>Age at Pregnancy Outcome</th>
<th>Number of Pregnancies</th>
<th>Pregnancy Rate</th>
<th>Birth Rate</th>
<th>Abortion Rate</th>
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a Rates are per 1000 females in the particular age group.
b Denominator for rates is females aged 11.
to contraceptive methods would encourage sex among young adolescents should be assuaged by recent evidence that vaccination against human papillomavirus did not increase sexual activity among 11- and 12-year-old girls. Although the high rate of sexual coercion among young adolescents is certainly cause for concern, it should not be used as a brush with which to tar sexual activity among those older teens who are capable of both deciding to initiate sex and, based on our findings, able to initiate contraceptive use when doing so.

ACKNOWLEDGMENTS

The authors thank Heather Boonstra, Laura Lindberg and Mia Zolna for reviewing earlier drafts of this paper.

REFERENCES

Sexual Initiation, Contraceptive Use, and Pregnancy Among Young Adolescents
Lawrence B. Finer and Jesse M. Philbin
Pediatrics 2013;131:886; originally published online April 1, 2013;
DOI: 10.1542/peds.2012-3495

The online version of this article, along with updated information and services, is located on the World Wide Web at:
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