

Teenagers' use of contraceptives at first intercourse: Long-term trends in use, correlates, and predictors for males and females

Joyce Abma
National Center for Health Statistics

Brittany McGill
National Center for Health Statistics

Introduction

Contraceptive method use is an important phenomenon to monitor for sexually experienced adolescents as it can provide protection against sexually transmitted infections (STIs) and unintended pregnancy. Contraceptive use at *first* intercourse is an important indicator not only of adverse outcomes of first intercourse itself, but also because it is related to teens' propensity to use contraception consistently and regularly thereafter. Teens who use contraception at first intercourse are more likely to use it subsequently (Shafii et al., 2004; Mauldon and Luker, 1996; Pleck et al., 1991).

Increases over time in teens' use of contraceptives are well-documented (Mosher and McNally, 1991; Abma and Sonenstein, 2001; Sonenstein et al., 1998; Sonenstein et al., 1989; Centers for Disease Control and Prevention, 2002; Abma et al., 2004; Franzetta et al., 2006; Santelli et al., 2006) and are consistent with dramatic decreases in pregnancies and births among U.S. teenagers. According to preliminary data for 2004, the birth rate for females aged 15-19 years was 41.2 births per 1,000 females, compared to 61.8 in 1991, a 33 percent decline (Hamilton et al., 2005). Along with the delay of sexual activity, contraceptive use plays a critical role in these declines (Santelli et al., 2006). Although contraceptive use has increased overall, subgroup differences exist. Hispanic teens are less likely to use contraception than their black and white counterparts

(Ryan et al., 2005). On other other hand, contemporary black male teens became more likely to use a condom at first sex than white males, whereas in the mid-1990s and before, they were less likely (Abma et al., 2004).

In this analysis, we more fully examine trends in adolescents' use of a contraceptive method at first intercourse by focusing on trends in correlates and predictors of method use at first sex, for both males and females. This analysis goes beyond prior studies by using comparable groups of teens, including males, and covering the past two decades, which includes the years before the downturn in pregnancy rates.

We use data from the 2002 National Survey of Family Growth (NSFG) to construct five year birth cohorts dating from 1982 to 2002. During this time span, important changes occurred in the context of adolescent sexual activity and contraceptive use. The issues of teen pregnancy, teen sexual activity, and the increasing spread of AIDS received widespread public attention in the 1980's. During this time policy emphasized abstinence as a means of reducing these negative consequences for teens. Public emphasis on the issue of teen pregnancy continued through the 1990's. The establishment of the National Campaign to Prevent Teen Pregnancy in 1996, a nonprofit, nonpartisan organization aimed at reducing teen pregnancy, is one reflection of this emphasis. Since the 1990s, policies and programs have ranged from endorsing comprehensive sex education programs, to once again focusing on and expanding abstinence education programs. Funding for Title X Family Planning clinics has decreased and increased over the period, and new hormonal contraceptives were introduced within the last decade. Against this backdrop, the influence of racial and

ethnic heritage, family contexts, and the nature of first sexual relationships, on teens' sexual risk behaviors, have undoubtedly changed in important ways.

Background

Demographic and background factors

An extensive body of literature documents the effects of socioeconomic status and characteristics of the family of origin, on contraceptive use at first intercourse. Maternal education, family structure, race and Hispanic origin, and the age at which a teen's mother had her first birth, have all been shown to affect the chances of teens' contraceptive use at first sex (Abma and Sonenstein, 2001; Bankole et al, 1999; Cooksey et al., 1996; Franzetta et al., 2006; Manning et al., 2000; Moore et al., 1998). Cooksey et al. examined changes in sexual debut and contraceptive use that occurred in the 1980's and concluded that not only did correlates of these behaviors change, but their effect changed across groups (1996).

Findings on the association of religious affiliation and religiosity with contraceptive use at first sex are more mixed. Brewster et al. found that more strongly religious teens are less likely to use a method at first intercourse, and also found changes in the impact of religion across time (1998). Similarly, an earlier study of adolescent males found fundamentalist affiliation to be associated with higher levels of sexual risk behaviors (Ku et al., 1992). On the other hand, others have found no association of religion with contraceptive use (Nonnemaker et al., 2003; Jones et al., 2005).

Circumstances of first sex

A teen's age at first sex is associated with the likelihood of contraceptive use, with older teen females more likely to practice contraception at first sex (Manning et al.,

2000; Abma et al., 2004; Abma and Sonenstein, 2001; Franzetta et al., 2006). According to some studies, the same is true of older male teens as well (Abma et al, 2004; Franzetta et al., 2006). Among male teens, in contrast, older age is associated with decreased likelihood of *condom* use (Ku, et al., 1993).

Recent research documents important influences of the male partner's characteristics and the nature of their relationship, on female teens' contraceptive use at first sex and at other points during the relationship. The older the male partner relative to the female teen, the less likely is contraceptive use at first sex (Abma et al., 1998; Manlove et al., 2003; Manlove et al., 2005) due in part to older males being less likely to use the condom (Ku, et al., 1993) and to the increased likelihood that sex is unwanted (Abma et al., 1998).

Findings on the effects of the nature of the relationship on contraceptive use at first sex are mixed. Some studies find a lower likelihood of contraceptive use within more casual relationships, compared to more serious relationships (Lescano et al., 2006; Manning et al., 2000; Manlove et al., 2003) and other analyses have found the converse (Santelli et al., 1996).

Data and Methods:

The NSFG is a periodic survey designed to provide reliable national data on fertility, marriage, divorce, contraception, infertility, and the health of women in the United States. In 2002 the National Center for Health Statistics (NCHS) conducted Cycle 6 of the NSFG surveying a nationally representative sample of women aged 15 to 44 and, for the first time in the history of the NSFG, men of the same age range. The final

sample included 7,643 women and 4,928 men. The overall response rate was 80 percent. The NSFG is conducted using face-to-face interviews. For more information on the sampling design of the NSFG, see Lepkowski et al., 2006.

Trend analysis using "teen cohorts"

Since the NSFG asks all respondents a series of questions about first sexual intercourse, it is possible to use the retrospective reports of respondents ages 15-44 for analysis of contraceptive use at first sex during the teen years. This analysis compares "teen cohorts" of respondents: those who were teens in the survey year (2002) are compared to those who were teens 10 years before the survey (1992), and those who were teens 20 years before the survey (in 1982). In order to make the cohorts comparable, subgroups who were teens in those pre-survey years were limited to those that would have contributed "observations" if the survey had been conducted *that year*. Thus, cases were included if they 1) were living in the U.S. as of the cohort year, and 2) had had sexual intercourse as of the cohort year. The latter was necessary because our analysis was limited to sexually experienced individuals, given the outcome of interest (method use at first sex). Respondents aged 15 to 19 in 2002 who were sexually experienced are a subset of all teenagers 15-19. Likewise, the 1992 teen cohort is limited to those who were sexually experienced by 1992, and the same is true for the 1982 cohort. Finally, all cohorts are limited to those whose first sexual intercourse was premarital.

Using retrospective data to create sexually experienced teen cohorts in this way has advantages and disadvantages. The major advantage is that issues of inconsistencies in survey design and methodology are nonexistent since the data are drawn only from the 2002 NSFG. Because of differences in universes asked questions about contraceptive use

at first sex, between the 2002 and 1995 NSFGs (the two most recent cycles), trend analysis is not possible using those two surveys. Second, using the same survey insures that all relevant factors are available for all time points. Cycles prior to the 1995 NSFG did not capture aspects of first sexual partners. The main disadvantage of this cohort approach is that the quality of the estimates depends upon accuracy of recall. For the oldest respondents included in the analyses, the event took place, on average, approximately 20 to 26 years in the past. It can be argued, however, that first sexual intercourse is a memorable event in one's life, and is probably reasonably accurately recalled.

We first present the percent of male and female teens in each cohort who used any method of contraception at first sex. For this tabulation we present percents for each cohort that the age range allows, given 5-year age intervals. The age range 15-44 allows the construction of 6 teen cohorts, with the oldest respondents experiencing the teen years in 1977.

Subsequent analyses focus on the 2002, 1992, and 1982 cohorts. First we present distributions on the demographic and background characteristics and circumstances associated with method use at first sex (Table 2), to gauge the extent of changes in the composition across these factors, in the (sexually experienced) teen population. We then look for change or stability in the associations of these characteristics with contraceptive use at first sex within each cohort: we present the percents using a method at first intercourse, according to the demographic and background characteristics, and first sex circumstances, for each cohort (Table 3). Finally, we will conduct multinomial logistic regression for the effect of these factors on the likelihood of using a method at first sex,

for each cohort (Table 4). This will allow us to examine changes in the net effects of the demographic and background characteristics and first sex circumstances over time.

Males and females will be analyzed separately in each table.

In the final version of the analyses, significance testing of the bivariate associations (Table 3) will be conducted for associations that are discussed in the results.

Preliminary Results

Consistent with prior analyses, Table 1 shows trends toward increases in the percent of sexually experienced teens using a method of contraception, over the past three decades. This table shows the slowing or plateauing of the increase between the 1992 and 2002 cohorts, particularly for females.

Table 2 shows changes in the composition of sexually experienced teen female cohorts since 1982, according to demographic characteristics, family background, and partner characteristics. Noteworthy changes can be seen in race and Hispanic origin, age, mother's education, family structure, relationship at first sex. This will be analyzed for the combined universe of males and females in the final version, since there is no reason to expect differences in composition by gender.

An interesting pattern presented in Table 3 involves mother's education. Earlier analyses showed that this parental characteristic, which is a proxy for socioeconomic status, was associated with risk behaviors such as unprotected intercourse. This no longer holds true for females' method use at first sex, for the most recent cohort. However, the association still holds for males: higher maternal education is associated with higher percents using contraception at first sex for the most recent cohort of teen males. Table 3

also demonstrates that Hispanics were much more likely to use a method in 2002 than in 1982, a pattern that holds true for both males and females.

Table 4 presents symbols indicating significance and direction of coefficients, for females. (This will also be run for males.) These results show some intriguing patterns, such as the absence of an independent influence of Hispanic ethnicity on contraceptive use at first sex, for the most recent cohort. On the other hand, the relationship with the first partner is significantly predictive of contraceptive use, for all time points.

Discussion and Summary

This analysis will build on prior research that documents increases (with slowing of increases in more recent years) in teens' use of contraception at first sex. It builds upon existing studies of the *correlates* of adolescents' contraceptive use as well, by examining them over time, with both bivariate and multivariate techniques, for both males and females. These analyses will help to explain why and how this aspect of adolescent risk behavior is changing, during a period characterized by significant shifts in awareness of, and public policy regarding, the adverse consequences of sexual activity.

References

Abma JC, Martinez GM, Mosher WD, Dawson BS. 2004. Teenagers in the United States: Sexual Activity, Contraceptive Use, and Childbearing, 2002. *Vital and Health Statistics* 23(24). Hyattsville, MD: National Center for Health Statistics.

Abma, J, and F Sonenstein. 2001. Sexual Activity and Contraceptive Practices Among Teenagers in the United States, 1988 and 1995. *Vital and Health Statistics*, Series 23, No. 21. Hyattsville, MD: National Center for Health Statistics, April, 2001.

Abma J, Driscoll A, and Moore K. 1998. "Young women's degree of control over first intercourse: an exploratory analysis", *Family Planning Perspectives*, 30(1):12-18.

Bankole A, Darroch JE, Singh S. 1999. Determinants of Trends in Condom Use in the United States, 1988-1995. *Family Planning Perspectives* 31(6):264-271.

Brewster KL, Cooksey EC, Guilkey DK, Rindfuss RR. 1998. "The changing impact of religion on the sexual and contraceptive behavior of adolescent women in the U.S." *Journal of Marriage and the Family* 60(2): 493-504.

Centers for Disease Control and Prevention. 2002. Trends in sexual risk behavior among high school students: United States, 1991- 2001. *Morbidity and Mortality Weekly Report*, 51(38), 856-859.

Cooksey EC, Rindfuss RR, Guilkey DK. 1996. The Initiation of Adolescent Sexual and Contraceptive Behavior during Changing Times. *Journal of Health and Social Behavior* 37(March):59-74.

Franzetta K, Terry-Humen E, Manlove J. 2006. Trends and Recent Estimates: Contraceptive Use among U.S. Teens. Research Brief. Washington, DC: Child Trends, August 2006.

Hamilton B, Martin JA, Ventura SJ, Sutton PD, Menacker F. 2005. "Births: Preliminary Data for 2004". *National Vital Statistics Reports*; vol 54 no 8. Hyattsville, Maryland: National Center for Health Statistics.

Jones RK, Darroch JE, Singh S. 2005. Religious differentials in the sexual and reproductive behaviors of young women in the United States. *Journal of Adolescent Health* 36(2005):279-288.

Ku L, Sonenstein F and Pleck J. 1993. "Young men's risk behaviors for HIV infection and sexually transmitted diseases, 1998 though 1991". *American Journal of Public Health* 83(11):1609-1615.

Ku L, Sonenstein F and Pleck J. 1992a. "Patterns of HIV risk and preventive behaviors among teenage men", *Public Health Reports* 107:131-138.

Lepkowski JM, Mosher WD, Davis KE, et al. 2006. National Survey of Family Growth, Cycle 6: Sample Design, Weighting, Imputation, and Variance Estimation. *Vital Health Stat* 2(142). Hyattsville, MD: National Center for Health Statistics.

Lescano CM, Vazquez EA, Brown LK, Litvin EB, Pugatch D, Project SHIELD Study Group. 2006. Condom use with "casual" and "main" partners: What's in a name? *Journal of Adolescent Health* 39(2006): 443.e1-443.e7.

Manlove J, Moore K, Liechty J, Ikramullah E, Cottingham S. 2005. Sex between young teens and older individuals: A demographic portrait. Research Brief. Washington, DC: Child Trends. September.

- Manlove J, Ryan S, and Franzetta K. 2003. "Patterns of contraceptive use within teenagers' first sexual relationships", *Perspectives on Sexual and Reproductive Health*, 35(6):246-255.
- Manning WD, Longmore MA and Giordano PC. 2000. "The relationship context of contraceptive use at first intercourse." *Family Planning Perspectives*, 32(3):104-110.
- Mauldon and Luker. 1996. "The Effects of contraceptive education on method use at First Intercourse" *Family Planning Perspectives* 28(1): 19-24, 41.
- Moore KA, Driscoll A, Lindberg LD. 1998. A statistical portrait of adolescent sex, contraception, and childbearing. Washington, DC: The National Campaign to Prevent Teen Pregnancy, March 1998.
- Mosher WD, McNally JW. 1991. Contraceptive Use at First Premarital Intercourse: United States, 1965-1988. *Family Planning Perspectives* 23(3): 108-116.
- Nonnemaker JM, McNeely CA, Blum RW. 2003. Public and private domains of religiosity and adolescent health risk behaviors: Evidence from the National Longitudinal Study of Adolescent Health. *Social Science & Medicine* 57(2003):2049-2054.
- Pleck J, Sonenstein F, Ku L. 1991. "Adolescent males' condom use: Relationships between perceived cost-benefits and consistency," *Journal of Marriage and the Family*, 53:733-745.
- Ryan S, Franzetta K, and Manlove J. 2005. "Hispanic teen pregnancy and birth rates: Looking behind the numbers." Research Brief. Washington, DC: Child Trends.
- Santelli JS, Kouzis AC, Hoover DR, Polacek M, Burwell LG and Celentano DD, 1996. "Stage of behavior change for condom use: the influence of partner type, relationship and pregnancy factors," *Family Planning Perspectives*, 28(3):101-107.
- Santelli JS, Anderson JE, Lindberg LD. 2006. Contraceptive Use and Pregnancy Risk Among U.S. High School Students, 1991-2003. *Perspectives on Sexual and Reproductive Health* 38(2): 106-111.
- Shafii T, Stovel K, Davis R, Holmes K. 2004. Is Condom Use Habit Forming? Condom Use at Sexual Debut and Subsequent Condom Use. *Sexually Transmitted Diseases* 31(6): 366-372.
- Sonenstein FL, Ku L, Lindberg LD, Turner CF, Pleck JH. 1998. Changes in sexual behavior and condom use among teenaged males: 1988 to 1995. *American Journal of Public Health* 88(6): 956-59

Sonenstein FL, Pleck JH, Ku L. 1989. Sexual activity, condom use, and AIDS awareness among adolescent males. *Family Planning Perspectives* 21(4): 152-158.

Terry, E and J Manlove. 2000. Trends in Sexual Activity and Contraceptive Use Among Teens. Washington, DC: The National Campaign to Prevent Teen Pregnancy. March, 2000.

Weinstock H, Berman S, Cates Jr., W. 2004. Sexually Transmitted Diseases Among American Youth: Incidence and Prevalence Estimates, 2000. *Perspectives on Sexual and Reproductive Health* 36 (1): 6-10.

Table 1. Percent of male and female teens who had sex before cohort year, who used a method of contraception, by teen cohort year: 2002 National Survey of Family Growth

Characteristic	Females ¹	Males ¹
	Percent who Used any method	Percent who Used any method
Age 15-19 in 2002	74.5	82.0
Age 15-19 in 1997	69.6	74.4
Age 15-19 in 1992	67.8	72.2
Age 15-19 in 1987	59.0	58.8
Age 15-19 in 1982	50.3	49.6
Age 15-19 in 1977	39.3	42.5

¹ Universe includes those who were living in the U.S. at or after the cohort year and who were not married at first intercourse, and who had had first intercourse by cohort year

Table 2. Percent distribution of female teens who had sex before cohort year, by family background, individual characteristics, and circumstances of first sex: 2002 NSFG

Characteristic	Females ¹		
	Age 15-19 in 2002	Age 15-19 in 1992	Age 15-19 in 1982
Race and Hispanic origin			
Hispanic	13.4	11.4	8.3
Non-Hispanic black	18.6	17.2	16.2
Non-Hispanic white	63.2	67.7	73.6
Immigrant status			
Born outside the U.S.	7.8	5.3	3.4
Born in the U.S.	92.2	94.7	96.6
Age at cohort year			
15-17	38.4	50.8	48.9
18-19	61.6	49.2	51.1
Mother's age at first birth			
Under 20 years	39.5	40.8	42.9
20 years or older	60.5	59.2	57.1
Mother's education			
No high school diploma or GED	17.2	20.2	23.6
High school diploma or GED	36.4	41.8	45.3
Some college or higher	46.5	38.0	31.2
Family structure at age 14 years			
Both biological/adoptive parents	54.5	59.8	65.5
Other	45.5	40.2	34.5
Religion in which raised			
None	13.8	10.7	8.4
Catholic	27.3	30.1	27.9
Fundamentalist Protestant	7.1	4.9	7.0
(Other) Protestant	48.6	50.3	53.1
Other religion	3.2	4.2	3.6
Age at first sex			
Under 14	28.0	30.1	27.4
15-16 years old	48.6	46.5	43.8
17-19 years old	23.4	22.9	28.6
Relationship at first sex			
Just met or just friends	14.0	12.5	17.2
Going out once in a while	6.6	6.3	7.8
Going steady	74.6	69.4	61.2

Engaged, cohabiting, other	4.9	11.8	13.9
Age of male partner at first sex (females)			
Younger or same age	18.9	21.1	18.3
1 year older	24.1	19.5	21.1
2-3 years older	34.6	33.8	31.3
4+ years older	22.4	25.6	29.4

¹ Universe includes those who were living in the U.S. at or after the cohort year and who were not married at first intercourse, and who had had first intercourse by cohort year

Table 3. Percent of females and males who were aged 15-19 and had sex before cohort year, who used a method of contraception at first sex, by family background, individual characteristics, and circumstances of first sex, for three cohorts: 2002 NSFG

Characteristic	Females ¹			Males ¹		
	Age 15-19 in 2002	Age 15-19 in 1992	Age 15-19 in 1982	Age 15-19 in 2002	Age 15-19 in 1992	Age 15-19 in 1982
	Percent who used a contraceptive method at first sex			Percent who used a contraceptive method at first sex		
Race and Hispanic origin						
Hispanic	66.2	53.3	34.4	73.4	53.0	30.7
Non-Hispanic black	71.0	56.6	55.5	85.6	62.7	32.7
Non-Hispanic white	78.0	73.3	51.4	84.8	79.9	53.6
Immigrant status						
Born outside the U.S.	58.4	53.4	38.2	77.1	49.9	7.6
Born in the U.S.	75.8	68.6	50.7	82.4	74.5	51.4
Mother's age at first birth						
Under 20 years	71.6	64.3	45.8	78.1	66.1	41.0
20 years or older	76.1	70.1	54.1	83.9	75.4	55.3
Mother's education						
No high school diploma or GED	70.8	57.9	44.0	68.0	57.9	43.0
High school diploma or GED	74.1	71.2	53.6	85.0	72.7	51.2
Some college or higher	76.3	70.9	50.8	83.4	77.8	52.1
Family structure at age 14 years						
Both biological/adoptive parents	73.7	70.3	51.6	82.3	70.8	51.7
Other	75.4	64.2	47.7	81.6	75.0	43.7
Religion in which raised						
None	69.1	73.3	53.0	81.6	84.6	66.0
Catholic	75.3	70.4	46.9	81.9	60.2	54.1
Fundamentalist Protestant	69.9	63.6	41.8	86.3	72.3	22.9
(Other) Protestant	76.0	64.2	53.6	82.1	77.8	44.9
Age at first sex						
Under 14	65.2	52.2	40.9	76.0	62.3	27.5
15-16 years old	75.9	73.3	50.8	88.1	80.0	58.9
17-19 years old	82.6	76.7	58.4	79.6	72.7	58.5
Relationship at first sex						
Just met or just friends	70.0	61.3	29.2	76.1	58.7	35.8
Going out once in a while	54.1	58.1	56.5	83.2	82.9	60.5
Going steady	77.7	73.5	56.1	86.4	80.7	66.8
Engaged, cohabiting, other	64.5	46.7	47.9	70.2	54.5	32.8

Age of male partner at first sex
(females)

Younger or same age	79.8	78.5	56.0
1 year older	77.1	67.7	57.4
2-3 years older	77.8	66.6	50.2
4+ years older	62.0	60.9	41.7

Age of female partner (males)

Female was younger	83.3	73.2	56.3
Same age	82.8	86.6	48.8
Female 1 year older	78.9	71.8	37.6
Female 2+ years older	76.2	49.1	27.7

¹ Universe includes those who were living in the U.S. at or after the cohort year and who were not married at first intercourse, and who had had first intercourse by cohort year

Table 4. Logistic Regression results for effects of family background, individual characteristics, and circumstances of first sex on the odds of using a method of contraception at first sex, among females and males who were ages 15-19 and had had sex by teen cohort year: 2002 NSFG

Characteristic	Females ¹			Males ¹		
	Age 15-19 in 2002	Age 15-19 in 1992	Age 15-19 in 1982	Age 15-19 in 2002	Age 15-19 in 1992	Age 15-19 in 1982
Race and Hispanic origin						
Hispanic		---				
(Non-Hispanic white)						
Non-Hispanic black		---				
Immigrant status						
Born outside the U.S.						
Born in the U.S.						
Mother's age at first birth						
Under 20 years						
20 years or older						
Mother's education						
No high school diploma or GED		-				
High school diploma or GED (Some college or higher)						
Family structure at age 14 years						
Both biological/adoptive parents						
Other						
Religion in which raised						
None		+				
Catholic		+				
Fundamentalist Protestant (Other Protestant)						
Age at first sex						
Under 14	--	--				
15-16 years old	-					
17-19 years old						
Relationship at first sex						
Just met or just friends			---			
Going out once in a while (Going steady)	--	--				
Engaged, cohabiting, other		---				
Age of male partner at first sex						

(females)							
Younger or same age							
1 year older							
(2-3 years older)							
4+ years older	--						
Age of female partner (males)							
Female was younger							
Same age							
Female 1 year older							
Female 2+ years older							

¹ Universe includes those who were living in the U.S. at or after the cohort year and who were not married at first intercourse, and who had had first intercourse by cohort year

--- = negative and sig at $p \leq .01$ -- = negative and sig at $p \leq .05$ - = negative and sig at $p \leq .10$
+++ = positive and sig at $p \leq .01$ ++ = positive and sig at $p \leq .05$ + = positive and sig at $p \leq .10$