

## **Ages at Reproductive Health Transitions in the United States**

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### **Abstract**

Key reproductive events such as first intercourse typically mark different life stages with varying service needs. We use four National Surveys of Family Growth from 1982 to 2002 and event history techniques to calculate median ages at various events for women and men. We find that age at menarche has not declined, contrary to published reports. Women's median age at first sex fell from the 1939 birth cohort through 1974, then increased slightly, to 17.6 for the 1985 cohort; median age for men was stable from 1960 to 1978, then increased to 17.7 for the 1985 cohort. Median age at first union (either marital or cohabiting) was stable for men and women, at about 22. Women's age at first marriage increased but age at first birth plateaued; by 1999 (the 1974 birth cohort), median age at first birth was earlier than first marriage. This gap also narrowed for men.

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Throughout life, individuals have many distinct sexual and reproductive health needs. Specific events, such as the initiation of sexual intercourse and the completion of childbearing, often mark the beginning or end of stages during which different needs predominate. For example, first intercourse marks the beginning of the period of risk for pregnancy and sexually transmitted diseases (although risk of the latter can be incurred before vaginal intercourse occurs). First marriage, though not a reproductive health event per se, closes the period at which an individual is at risk for an out-of-wedlock birth (although risk still exists if individuals have other partners<sup>1</sup>). Completion of desired childbearing often brings a change in a person's choices regarding contraception.

Examining the ages at which these events typically occur is one way to determine the order of events and the length of these stages. Certainly, individual lives are more complex and variable than what is implied by a "typical" order and timing of stages. But placing in order the median ages at which these events occur can be helpful for understanding the processes by which many or most individuals progress through these stages, and also enables us to compare various populations on the events of interest.

Past work has summarized the range of these reproductive health life stages using the best available data.<sup>2</sup> In addition, single milestones have been examined more recently. For example, the rise in age at first intercourse in the 1990s (often described as a decline in proportion of adolescents who have had sex) has received a great deal of attention from researchers<sup>3</sup> and continues to do so in light of current federal programs to promote abstinence until marriage. However, a comprehensive assessment of these stages has not been performed since 1993 (on

data which were collected in 1988). As a result, an up-to-date examination of the timing of these stages is overdue.

In this analysis, we refine prior research by calculating median ages using event history analysis techniques. A Kaplan-Meier survivor or failure function is plotted for each birth year cohort, and the median age is calculated by interpolating between the two ages (accurate to the month) that straddle 50 percent on the survival curve. More than half the sample must have experienced the event in order to be able to calculate the median age. Medians are calculated for the following events: menarche (for women), first sex (for women and men), first contraceptive use (for women), first union (cohabiting or marital) (for women and men), first marriage (for women and men), and first birth (for women and men).

The primary sources of data for this analysis were Cycles 3, 4, 5 and 6 of the National Survey of Family Growth (NSFG), conducted in 1982, 1988, 1995 and 2002. A total of 34,909 women aged 15-44 were surveyed in the four rounds. In addition, 4,928 men were surveyed in 2002. A secondary source for men was the 1995 National Survey of Adolescent Males, which surveyed 1,729 men 15-19.

Initial results are shown in the attached tables.

Previous reports have suggested that the age at menarche has declined over the past 25 years.<sup>4</sup> Contrary to these reports, we find that age at menarche has not declined. Although it fluctuates over the period studied, it is close to 12.5 for most cohorts.

Women's median age at first sex fell from 19.2 for the 1939 birth cohort through 1974, when it was 17.0, then increased slightly, to 17.6 for the 1985 cohort; median age for men was stable from 1960 to 1978, at about 17.0, then increased to 17.7 for the 1985 cohort.

For women, median age at first contraceptive use declined over the period, and at a rate slightly faster than the age at first sex, such that by the 1977 birth cohort these were virtually identical. (This does not necessarily imply that all teens use contraception at first sex, in part because the shape of the two event curves may vary. Additional analyses will be performed to explore this.)

Median age at first union (either marital or cohabiting) for women increased slightly through about the 1965 birth cohort and then stabilized at about 22. The median age was stable for men, also about 22.

Women's age at first marriage increased but age at first birth plateaued; by 1999 (the 1974 birth cohort), median age at first birth was earlier than first marriage. This gap also narrowed for men, primarily due to decreases in age at first birth; age at first marriage was stable at about 27 from the 1970 cohort onward.

The following additional analyses will be completed for the presentation:

First, medians are not the only useful measure of when events occur. While the median age is a useful summary measure of the total population, medians may mask significant change at the ends of the distribution. Reproductive events that occur particularly early or late also often have relevant policy concerns, such as those who have sex and give birth at particularly young ages. Additional centiles (e.g., 10th, 25th, 75th and 90th) of these events' occurrence will be calculated to assess how quickly the entire population transitions to one of these events and whether that variance has changed over time.

Second, hazards models are also used to compare event curves across demographic subgroups. For example, the stability in age at menarche may mask changes among certain

subgroups; and changes in age at first sex may not have occurred equally among all adolescents. The implications of these differences will be discussed.

Third, estimates of median ages at additional events will be calculated for events where data are not sufficient to calculate event curves. Instead, synthetic cohorts will be used and a cross-sectional approach, where a cross-tabulation is performed of the proportion of individuals who have experienced the event at each age, will be used to estimate the age at which half (or some other proportion) of individuals have experienced the event.

Preliminary results indicate that the end of desired and actual fertility has grown substantially over the period examined. As a result, women are at risk of unintended pregnancy for a substantial (and increasing) proportion of their reproductive years. This increasing period of exposure implies a growing need for reproductive health services.

<b>Women Cohort</b>	<b>Menarche</b>	<b>First sex</b>	<b>First contraceptive use</b>	<b>First union</b>	<b>First marriage</b>	<b>First birth</b>
1939	12.5	19.2	na	na	20.2	22.1
1940	12.5	19.0	na	na	20.2	22.0
1941	12.4	19.0	na	na	20.3	22.3
1942	12.5	19.0	na	na	20.5	22.5
1943	12.4	19.0	na	na	20.5	22.4
1944	12.5	19.1	na	na	20.7	22.6
1945	12.5	19.1	20.2	20.7	20.7	22.8
1946	12.4	19.1	20.1	20.7	20.8	22.9
1947	12.4	19.1	20.1	20.7	20.8	22.9
1948	12.4	19.0	19.9	20.8	20.9	23.3
1949	12.4	18.9	19.7	20.7	20.9	23.5
1950	12.4	18.8	19.5	20.8	21.2	24.0
1951	12.4	18.6	19.3	20.8	21.2	24.1
1952	12.5	18.5	19.2	20.8	21.3	24.5
1953	12.5	18.3	19.0	20.9	21.4	24.6
1954	12.5	18.2	18.8	20.9	21.6	24.7
1955	12.5	18.1	18.7	21.0	21.8	24.7
1956	12.5	18.0	18.6	21.1	22.2	24.9
1957	12.5	18.0	18.5	21.3	22.4	24.9
1958	12.5	18.0	18.5	21.3	22.7	25.1
1959	12.6	18.0	18.5	21.4	22.8	25.2
1960	12.6	17.9	18.4	21.4	23.0	25.5
1961	12.6	17.9	18.4	21.6	23.3	25.7
1962	12.6	17.8	18.3	21.5	23.5	25.7
1963	12.6	17.8	18.3	21.7	23.7	25.9
1964	12.6	17.7	18.2	21.9	23.9	26.0
1965	12.6	17.7	18.2	22.0	24.4	25.9
1966	12.6	17.7	18.1	22.1	24.4	26.0
1967	12.6	17.7	18.1	22.1	24.6	26.1
1968	12.5	17.6	18.0	22.1	24.8	26.1
1969	12.5	17.4	17.9	21.9	24.9	26.1
1970	12.5	17.3	17.8	21.9	24.9	26.0
1971	12.5	17.2	17.7	21.8	25.0	25.9
1972	12.4	17.2	17.6	21.8	25.2	25.9
1973	12.4	17.1	17.4	21.9	25.4	25.8
1974	12.4	17.0	17.3	21.9	25.5	25.3
1975	12.4	17.0	17.2	21.9	25.5	25.3
1976	12.4	17.0	17.3	21.8	25.4	25.1
1977	12.4	17.1	17.3	21.7	25.5	25.1
1978	12.4	17.1	17.2	21.6	25.8	25.3
1979	12.3	17.3	17.4	21.7	na	na
1980	12.4	17.4	17.4	21.7	na	na
1981	12.4	17.3	17.3	21.7	na	na
1982	12.5	17.3	17.3	21.9	na	na
1983	12.5	17.4	17.5	na	na	na
1984	12.5	17.6	17.6	na	na	na
1985	12.4	17.6	17.7	na	na	na

<b>Men</b>				
Cohort	First sex	First union	First marriage	First birth
1960	17.0	21.4	26.4	29.1
1961	17.0	21.6	26.4	29.2
1962	16.9	21.5	26.5	29.1
1963	17.0	21.7	27.3	29.8
1964	17.0	21.9	27.5	29.5
1965	17.4	22.0	28.1	29.8
1966	17.4	22.1	28.3	30.3
1967	17.2	22.1	27.9	30.3
1968	17.0	22.1	27.5	30.1
1969	16.8	21.9	27.7	30.1
1970	16.8	21.9	27.2	29.9
1971	16.8	21.8	27.2	29.1
1972	16.8	21.8	27.2	28.8
1973	16.9	21.9	27.1	28.8
1974	16.8	21.9	26.9	28.1
1975	16.9	21.9	27.3	28.9
1976	16.8	21.8	27.5	28.6
1977	16.9	21.7	27.1	na
1978	17.0	21.6	na	na
1979	17.2	21.7	na	na
1980	17.3	21.7	na	na
1981	17.3	21.7	na	na
1982	17.4	21.9	na	na
1983	17.5	na	na	na
1984	17.6	na	na	na
1985	17.7	na	na	na

<sup>1</sup> Finer LB, Darroch JE and Singh S, Sexual partnership patterns as a behavioral risk factor for sexually transmitted diseases, *Family Planning Perspectives* 31(5): 228-236, 1999

<sup>2</sup> Forrest JD, 1988, Contraceptive needs through stages of women's reproductive lives, *Contemporary Ob/Gyn* 32: 12-22; and Forrest JD, 1993, Timing of reproductive life stages, *Obstetrics and Gynecology* 82(1): 105-111.

<sup>3</sup> Abma J et al, 1997, Fertility, family planning and women's health: New data from the 1995 National Survey of Family Growth, *Vital and Health Statistics* 23(19); Kann L et al, 2000, Youth risk behavior surveillance — United States, 1999, *Centers for Disease Control and Prevention Surveillance Summaries* 49(SS-5), June 9.

<sup>4</sup> Anderson SE et al., Relative Weight and Race Influence Average Age at Menarche: Results From Two Nationally Representative Surveys of US Girls Studied 25 Years Apart, *Pediatrics*, 2003, 111(4): 844–850.