

Original research article

Age of sexual debut among US adolescents[☆]

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Received 12 December 2008; revised 9 February 2009; accepted 23 February 2009

Abstract

Background: This study examined gender and racial/ethnic differences in sexual debut.

Study Design: We analyzed 1999–2007 data from the Youth Risk Behavior Surveillance System (YRBSS), a cross-sectional, nationally representative survey of students in Grades 9–12 established by the Centers for Disease Control and Prevention. The Kaplan–Meier method was used to compute the probability of survival (not having become sexually active) at each year (age 12 through 17), and separate estimates were produced for each level of gender and racial/ethnic group.

Results: African-American males experienced sexual debut earlier than all other groups (all tests of significance at $p < .001$) and Asian males and females experienced sexual debut later than all groups (all tests of significance at $p < .001$). By their 17th birthday, the probability for sexual debut was less than 35% for Asians (females 28%, males 33%) and less than 60% for Caucasians (58% females, 53% males) and Hispanic females (59%). The probability for sexual debut by their 17th birthday was greatest for African Americans (74% females, 82% males) and Hispanic males (69%).

Conclusions: These results demonstrate a need for sexual education programs and policy to be sensitive to the roles of race and ethnicity in sexual debut.

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Keywords: Sexual debut; Adolescent risk behaviors; Sexual intercourse; Sexual differences

1. Introduction

First sexual intercourse, or sexual debut, is a normal part of human development. The proportion of high school

students who were sexually active has remained steady since 1997, approaching nearly 50% for all high school students with almost 70% of youth experiencing sexual debut by age 18 [1–3]. Approximately 7.1% of American youth report sexual debut prior to 13, with more male than female youth reporting early sexual debut; by age 16, approximately 30% of females and 34% of males have had sexual intercourse [1,4].

Examining differences in sexual debut across racial/ethnic groups is important to improve understanding on the effects of culture on sexuality. A vast amount of published data has already examined sexual debut and the data suggests that African Americans tend to initiate sexual intercourse at an earlier age than Caucasian, Hispanic and Asian youth, while Asians experience sexual debut at a later age when

[☆] This publication was made possible by funding from the KL2 RR024994–ICTS Multidisciplinary Clinical Research Career Development Program and Grant Number UL1 RR024992 from the National Center for Research Resources (NCRR), a component of the National Institutes of Health (NIH) and NIH Roadmap for Medical Research. Its contents are solely the responsibility of the authors and do not necessarily represent the official view of NCRR or NIH. This publication was also supported in part by a Midcareer Investigator Award in Women's Health Research (K24 HD01298).

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compared with these racial/ethnic groups [5–6]. However, most of the findings are based on community and/or convenience samples with relatively few studies utilizing nationally representative samples that support generalization [7]. In fact, no studies with sample sizes large enough to sufficiently characterize and compare sexual debut across these four major racial/ethnic groups in the general population were found in the existing literature within the last 10 years. This is particularly true for Asians due to the small sample of this population in national data systems. To better inform culturally appropriate sexual health education and health promotion programs, we seek to extend previous research by using 1999–2007 data from the National Youth Risk Behavior Survey (YRBS) to compare patterns of sexual debut in adolescents across gender and racial/ethnic groups.

Much of the literature on sexual debut categorizes time of sexual debut (e.g., early, late) rather than examining the age of sexual debut. For example, Sandfort et al. [8] compared participants' sexual debut with peers of the same gender and with the same racial/ethnic and educational background to classify their onset of sexual intercourse as early, normative or late, and correlate them with long-term sexual health outcomes. Similarly, French and Dishion [9] utilized a high-risk approach for the development of substance use and problem behavior community sample of adolescents to delineate predictors of sexual debut at an early age, defined as intercourse at age 14 or younger. We extend these studies by examining sexual debut across a range of years (age 12 through 17) rather than categorically. This is a more powerful approach to risk behavior analysis, enabling us to explore a nonlinear relationship of sexual debut and reflecting a more accurate measure of this behavior rather than somewhat arbitrarily creating a categorical threshold variable of "early" vs. "normative" or "later." Moreover, we utilize the Kaplan–Meier method which actually suggests the extent to which being male or female in a certain racial and ethnic group may accelerate the adolescents' sexual debut relative to others who have not had that experience.

2. Methods

2.1. Data source and participants

The YRBS was established by the Centers for Disease Control and Prevention (CDC) to measure health-risk behaviors that result in unintentional and intentional injuries, including risky sexual behaviors and substance use behaviors. For each survey period, the YRBS utilizes a three-stage cluster sampling design to produce a representative sample of high school students (9th through 12th grade) attending public, Catholic and other private schools in the United States [10]. The survey has been conducted biennially since 1991 on a sample of about 15,000 students. This study utilizes 1999–2007 data (five years: 1999, 2001, 2003, 2005 and 2007) [11].

Data pooled over several years permitted differences among racial and ethnic groups to be distinguished. Data were weighted to adjust for nonresponse and oversampling of African Americans and Hispanics in the sample. The overall weights were scaled to ensure that the weighted count of students was equivalent to the entire sample size, and the weighted proportions of students in each grade corresponded with the national population proportions for each survey year [10].

The questions included in the YRBS have gone through cognitive response testing. The items related to sexual behavior were found to have substantial reliability (.63) [10]. The items of interest in the proposed project were worded identically during years 1999–2007. The Washington University Human Research Protection Office reviewed this project and determined that it does not involve activities that are subject to institutional review board oversight.

2.2. Analysis

The event of interest in this study was time until first sexual intercourse through one's 17th birthday, assessed by the question "How old were you when you had sexual intercourse for the first time?" Responses were "I have never had sexual intercourse," "11 years old or younger," "12 years old," "13 years old," "14 years old," "15 years old," "16 years old" and "17 years old or older." For the purpose of this analysis, those answering "11 years old or younger" were assumed to have the onset of sexual debut by their 12th birthday, "12 years old" by their 13th birthday, "13 years old" by their 14th birthday, "14 years old" by their 15th birthday, "15 years old" by their 16th birthday and "16 years old" by their 17th birthday. Those answering "17 years old or older" were censored and their time variable was 17. Those not yet sexually active were censored and their time variable was their age at the time of the survey. For example, if a respondent was 15 years old and had not yet had sex, their time variable was 15 since they did not have sex by their 15th birthday. If the respondent was 17 years old or above and had not had sex, their time variable was 17. All analyses were performed using SAS-callable SUDAAN version 9.0.1, a software program that uses Taylor series linearization to adjust for design effects of complex sample surveys like the YRBS [12]. Because data were pooled over several years, analyses took into account all stages of clustering (year, stratum and primary sampling unit). Sample weights were also applied to all analyses. Descriptive statistics were used to summarize the data.

The Kaplan–Meier method was used to compute the probability of survival (not having become sexually active) by each age (age 12 through 17). Separate Kaplan–Meier estimates were produced for each level of gender and racial/ethnic group (Caucasians, African Americans, Hispanics and Asians). Modeled results from SUDAAN were used to produce Kaplan–Meier curves using SAS version 9.1.3. A log-rank test is not available for complex survey data to

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