

Sexual Inactivity During Young Adulthood Is More Common Among U.S. Millennials and iGen: Age, Period, and Cohort Effects on Having No Sexual Partners After Age 18

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Abstract Examining age, time period, and cohort/generational changes in sexual experience is key to better understanding socio-cultural influences on sexuality and relationships. Americans born in the 1980s and 1990s (commonly known as Millennials and iGen) were more likely to report having no sexual partners as adults compared to GenX'ers born in the 1960s and 1970s in the General Social Survey, a nationally representative sample of American adults ($N = 26,707$). Among those aged 20–24, more than twice as many Millennials born in the 1990s (15 %) had no sexual partners since age 18 compared to GenX'ers born in the 1960s (6 %). Higher rates of sexual inactivity among Millennials and iGen also appeared in analyses using a generalized hierarchical linear modeling technique known as age–period–cohort analysis to control for age and time period effects among adults of all ages. Americans born early in the 20th century also showed elevated rates of adult sexual inactivity. The shift toward higher rates of sexual inactivity among Millennials and iGen'ers was more pronounced among women and absent among Black Americans and those with a college education. Contrary to popular media conceptions of a “hookup generation” more likely to engage in frequent casual sex, a higher percentage of Americans in recent cohorts, particularly

Millennials and iGen'ers born in the 1990s, had no sexual partners after age 18.

Keywords Sexual inactivity · Virginitly · Generations · Birth cohort differences · Millennials · iGen

Introduction

Popular media sources often assume that young people are having sex earlier than in past generations, and that casual sex is now more common due to new technology such as Tinder and other dating websites and apps (e.g., Sales, 2015). Observers theorize that the new culture of “hooking up” promotes sex without commitment, leading to more sexual partners (Stepp, 2008). Some empirical evidence suggests that the perception of earlier sexual experiences among more recent generations may be mistaken, at least among teens. The Youth Risk Behavior Survey administered by the U.S. Centers for Disease Control found that the percentage of the U.S. 9th through 12th graders who are virgins (have never had sexual intercourse) increased between 1991 and 2015, from 46 to 59 % (CDC, 2016; Eaton et al., 2011).

However, it is unclear whether this trend toward less sexual activity is also true of young adults, and if so, what lies behind shifts in sexual inactivity. Behavioral and attitudinal change over time can involve three different processes (Campbell et al., 2015; Schaie, 1986; Yang, 2008). First, change can be due to age or development. The number of people who have had sex will increase with age. Second, change can be due to time period, or a cultural change that affects people of all ages. Perhaps, fewer (or more) Americans of all ages have had sex as adults. Third, changes in sexual inactivity could be due to cohort (also known as generation), a cultural change that affects young people the most. Perhaps fewer young Americans in recent cohorts are sexually active as adults.

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In this article, we seek to examine generational trends in sexual inactivity during adulthood. For example, are Millennials (born 1980–1994) and iGen (born 1995–2012)¹ more, less, or equally likely to be sexually inactive as adults compared to previous generations at the same age? We draw from the General Social Survey (GSS), a nationally representative sample of American adults asking about sexual partners since age 18 in its annual or biannual surveys 1989–2014.

What societal trends might impact adult sexual inactivity? Despite lower levels of teen sexual activity, perhaps Millennials and iGen quickly began having sex in the years after they turned 18 as they went to college and entered the adult dating scene. American culture has shifted to value the individual self and self-expression over social rules (Twenge, 2014), leading to greater acceptance of premarital sex (Twenge, Sherman, & Wells 2015; Wells & Twenge, 2005), suggesting that sexual activity should be more common among Millennials and iGen during early adulthood.

On the other hand, it is also possible that more Millennials and iGen'ers will be sexually inactive in early adulthood, given their slower start as teens. With more living with their parents even post-recession (Pew Research Center, 2015), young adults may have fewer opportunities to have sex. In addition, marriage is the traditional outlet for sexuality, and only 26 % of Millennials aged 18–32 were married as of 2014, compared to 36 % of GenX'ers (born 1965–1979) in 1997 and 48 % of Boomers (born 1946–1964) in 1980 (Pew Research Center, 2014). Overall, emerging adults (the new label for young adults aged 18–29) are embracing adult responsibilities at later ages than previous generations did (Arnett, 2005). A recent analysis showed that Millennials actually had fewer lifetime sexual partners than Boomers when age and time period were controlled (Twenge et al., 2015), and another study found few differences in numbers of sexual partners between the 1990s and 2010s among young people who attended college (Monto & Carey, 2014).

New technology may have created unequal outcomes. While some young adults may use apps such as Tinder to hook up with many partners, a growing minority may be excluded from this system entirely, perhaps due to the premium placed on physical appearance on dating websites (e.g., Rudder, 2009, 2014). Further, some have noted that hooking up may largely include nonpenetrative sexual behaviors (such as oral sex) with one study finding that while 81 % of college students reported engaging in some sexual behavior in the context of hooking up, only 34 % reported sexual intercourse during a hookup (Reiber & Garcia, 2010). Similarly, in an analysis of the characteristics of the most recent hookups of 11,532 undergraduates, Kuperberg and Padgett (2016) found that 45 % of men

and 41 % of women reported vaginal or anal sex in that hookup. Further supporting these estimates of intercourse in hookups, Fielder and Carey (2010) found that only 27 % of the most recent hookups of first semester college women involved vaginal sex.

In addition, abstinence-only sex education and virginity pledges became more popular (and federally funded) after the 1980s, especially between 1996 and 2009 when abstinence-only programs received large amounts of federal and state funding (Lerner & Hawkins, 2016). Most research has concluded that abstinence-only education does not delay first intercourse (Kirby, 2008; Kohler, Manhart, & Lafferty, 2008; Rosenbaum, 2009), though some studies have found a short delay (Bennett & Assefi, 2005; Brückner & Bearman, 2005; Martino, Elliott, Collins, Kanouse, & Berry, 2008). Nevertheless, it is possible that these programs may have increased sexual inactivity rates. Trends may also differ across groups, with different standards among racial groups (Sprecher, Treger, & Sakaluk, 2013) and stronger prohibitions against premarital sex among the religious (Jung, 2015; Sheeran, Abrams, Abraham, & Spears, 1993) that may impact the timing of sexual intercourse (Hull, Hennessy, Bleakley, Fishbein, & Jordan, 2011; Rostosky, Regnerus, & Wright, 2003; Sprecher & Treger, 2015; Vazsonyi & Jenkins, 2010).

For a variety of reasons, it is critical to understand trends in sexual inactivity, as well as demographic distinctions in those trends. The timing of sexual intercourse has long-term consequences for sexual health and sexual behavior (Sandfort, Orr, Hirsch, & Santelli, 2008). For example, early sexual debut is associated with higher rates of sexual risk behavior in adolescence (Finer & Philbin, 2013; Kaplan, Jones, Olson, & Yunzal-Butler, 2013) and adulthood (Magnusson, Masho, & Lapane, 2012) and, in some cases, with negative sexual health outcomes (Heywood, Patrick, Smith, & Pitts, 2015). As such, understanding temporal and generational changes in sexual inactivity will help inform public health efforts to address a whole range of sexual behaviors and outcomes.

The current analysis examines self-reports of sexual partners after age 18 (we presume that survey items asking about “sexual partners” and “having sex” mean intercourse, but some participants may interpret the questions differently), focusing on those who report having no male or female partners. We take a two-pronged approach to examining generational differences in adult sexual inactivity. First, we compare sexual inactivity rates by birth decade among 20–24 year olds, as this was the only age range that included adults born in the four most recent decades of birth for adults (1960s, 1970s, 1980s, and 1990s; those born in 1969 were 20 in 1989, and those born in 1990 were 24 in 2014). Second, we perform age-period-cohort (APC) analysis on the entire sample of adults (ages 18–96). This relatively new statistical technique employs hierarchical linear modeling to separate the effects of age, time period, and cohort/generation (Yang, 2008; Yang & Land, 2013). Thus, it can provide a view of generational differences in adult sexual inactivity controlled for both age and time period. We also examine gender, race, education, region, and religiosity as moderators, to discern whether any changes in sexual inactivity differed from one group to another.

¹ With the first iGen'ers turning 18 in 2013, most datasets (including the one we analyze here) include only the first few birth years of this generation, and other studies do not include them at all. Thus, some results will refer to Millennials only, and others to Millennials and iGen.

Method

Participants

The GSS is a nationally representative sample of Americans over 18, collected in most years between 1972 and 2014 ($N = 56,859$; for the variables in the current analysis, $N = 26,707$). The GSS data and codebooks are available online (Smith et al., 2015). As suggested by the GSS administrators, we weighted the descriptive statistics by the variable WTSSALL to make the sample nationally representative of individuals rather than households. The weighting variable primarily corrects for the greater probability of those in smaller households to be included, as only one person per household is surveyed.

Measures

Beginning in 1989, GSS asked several items on sexual behavior. Two questions asked about sexual partners since age 18: “Now thinking about the time since your 18th birthday (including the past 12 months), how many female partners have you had sex with?” and “Now thinking about the time since your 18th birthday (including the past 12 months), how many male partners have you had sex with?” Participants were categorized as sexually inactive as adults if they reported having no male and no female partners. Codes for “1 or more, number unknown,” “several,” or “many, lots” were recorded as having partners. Codes for “dash or slash” were recorded as no partners, and codes for “X,” “garbled text,” “N.A.,” “Refused,” “Don’t know,” and “No answer” were considered missing values.

The GSS also included demographic variables, making it possible to determine if changes in sexual inactivity differed by group. We analyzed moderation by gender (men vs. women), race (White, Black, and Other), education level (no college vs. some college and above), U.S. region (Northeast, Midwest, South, and West), and religious service attendance (attending religious services once a week or more vs. not).

Procedure

First, we performed an ANOVA and effect size calculation comparing the percent of individuals aged 20–24 who reported no sexual partners after age 18 among those born in the 1960s, 1970s, 1980s, and 1990s. We grouped people by birth decade as a compromise between breadth and depth. Using a larger span (for example, a 20-year generation) risks losing discriminatory power, and a smaller span (such as 5-year groups) risks low sample size. For each birth decade cohort, the mean age of participants was 22 years.

To better separate the effects of age, time period, and cohort, we performed age, period, cohort (APC) analyses on the entire sample (those of all ages). Following the recommendations of Yang and Land (2013), we estimated mixed-effects models allowing intercepts to vary across time periods (years) and

cohorts. Thus, effectively, an intercept (mean) score was calculated (using empirical Bayes) for each cohort and each survey year. In addition, a fixed intercept (grand mean) is estimated along with fixed linear and quadratic effects of age.² This model has three variance components: one for variability in intercepts due to cohorts (τ_{u0}), one for variability in intercepts due to period (τ_{v0}), and a residual term containing unmodeled variance within cohorts and periods. Variance in the intercepts across time periods and cohorts indicates period and cohort differences, respectively. Effectively, this allows us to estimate the percentage of sexually inactive participants for each year and cohort that are independent of each other and age. All APC analyses were conducted using the lme4 package (Bates, Maechler, Bolker, & Walker, 2014) in R (R Core Team, 2014).

We used generalized mixed-effects models because sexual inactivity as an adult (having no partners since age 18 vs. having at least one partner) is dichotomous. Weighting could not be used for the mixed-effects analyses because proper probability weighting for variance component estimation requires taking into account pairwise selection probabilities, which is not possible with current statistical software.

In describing the trends in the text and tables, we will sometimes employ common labels for the generations such as the G.I. or “Greatest” generation (born 1900–1924), Silent (1925–1945), Boomers (1946–1964; some argue 1943–1960), GenX (1965–1979 or 1961–1981), Millennials (1980–1994), and iGen (1995–2012; for reviews, see Strauss & Howe, 1991; Twenge, 2014). These birth year cutoffs are arbitrary and are not necessarily justified by empirical evidence, but are useful labels for those born in certain eras.

Results

Among Americans aged 20–24, Millennials born in the early 1990s were significantly more likely to report no sexual partners after age 18 than GenX’ers born in the late 1960s (see Table 1). Fifteen percent of 20- to 24-year-old Americans born in the 1990s had no sexual partners since turning 18, compared to 6% of the 1960s cohort ($d = .30$).

This could be caused by age if more of the 1960s cohort were 23 or 24 and more of the 1990s cohort were 20, 21, or 22. Thus, we examined the means within those age groups, finding that the generational difference for those aged 20–22 was still statistically significant and the d was reduced only slightly to $d = .27$. These results were very similar when examined among White participants only, with 14% of those born in the early 1990s sexually inactive compared to 7% of those born in the late 1960s. The percentage of women who were sexually inactive as young adults tripled between the 1960s-born cohort to the 1990s-born cohort,

² We also considered a model including a cubic effect for age, but did not have confidence in its reliability due to small sample sizes among participants over age 82 (when sample sizes by year of age dip below $n = 100$).

Table 1 Percentage of American 20 to 24 year olds who report having no sexual partners after age 18, by birth cohort, General Social Survey, 1989–2014

	Born 1965–1969 [% (SD) <i>n</i>]	1970–1979 [% (SD) <i>n</i>]	1980–1989 [% (SD) <i>n</i>]	1990–1994 [% (SD) <i>n</i>]	<i>F</i>	<i>t</i> (60s vs. 90s)	<i>d</i> (60s vs. 90s)
All ages 20–24	6.31 (.24) 347	11.49 (.32) 1162	11.67 (.32) 966	15.17 (.36) 291	4.39**	3.58***	.30
Ages 20–22 only	7.95 (.27) 183	14.28 (.35) 644	16.28 (.37) 558	16.63 (.37) 214	2.85*	2.69**	.27
Ages 23–24 only	4.48 (.21) 164	8.03 (.27) 518	5.38 (.23) 408	11.07 (.32) 77	2.05	1.65	.27

Standard deviations in parentheses, followed by *n*

*** $p < .001$; ** $p < .01$; * $p < .05$

from 5 % to 16 %, and nearly doubled (from 8 % to 14 %) among men.

To more thoroughly control for age, we performed APC analyses using generalized hierarchical linear modeling on the entire sample, which includes those aged 18–96 and born between 1900 and 1996. These analyses allow the separation of age, period, and cohort effects. In terms of fixed effects, both the linear and quadratic effects of age were statistically significant (Odds Ratio_{age} = .98, $z = -6.60$; Odds Ratio_{age-squared} = 1.00, $z = 12.87$) yielding a convex U-shaped pattern. This pattern indicates that, controlling for time period and cohort, both very young and very old participants were more likely to report no sexual partners as adults.

In terms of random effects, there was sizable variance in sexual inactivity since age 18 due to both time period (SD = .15) and cohort (SD = .26; see Fig. 1a, b). Cohort demonstrated a curvilinear trend. Controlling for age and time period effects, the percentage of those who had no sexual partners after age 18 steadily rose after the 1960s-born Boomer/GenX cohort (1960s = 1.8 %; 1970s = 2.5 %; 1980s = 2.9 %; 1990s = 4.1 %). Thus, even with age and time period controlled, 1990s-born Millennials and iGen'ers are more than twice as likely to be sexually inactive as adults than 1960s-born GenX'ers, and 41 % more likely than 1980s-born Millennials.

Cohorts born early in the 20th century also showed a higher rate of adult sexual inactivity (for example, 3.6 % among those born in the 1920s). This could be due to the stricter adherence to mores around sex and marriage in these cohorts. For example (based on descriptive, not APC, analyses), 62 % of those in the 1920s cohort who had never been married had no sexual partners as an adult, compared to 8 % among the unmarried in the 1960s cohort. This does not explain the entirety of the effect, however, as the rate of sexual inactivity among those who married was also higher among those born in the 1900s–1930s (for example, 8 % among married individuals in the 1910s cohort, and 4 % in the 1920s cohort, compared to 2 % or less among those born 1940 and later).

We also examined moderators of the cohort effects in the APC analyses.³ The increase in adult sexual inactivity between the 1960s and 1990s cohorts was larger and significant among women

(from 2.3 to 5.4 %) but not among men (from 1.7 to 1.9 %). It was nonexistent among Black Americans (2.6–2.6 %, compared to a significant jump from 1.6 to 3.9 % among Whites). The increase in sexual inactivity was significant only among those without a college education (jumping from 1.7 to 4.1 %) and was nonexistent among those who attended college (2.2–2.2 %). The trend was largest and significant in the East (2–4.5 %), followed by the West (1.7–2.7 %) and Midwest (2.1–3.2 %, not significant), and nonexistent in the South (2.4–2.4 %). The increase was slightly larger and significant among those who attend religious services (2.3–4.3 %) than among those who do not (1.5–3 %, not significant). Many of the differences between groups in recent cohorts were also significant: For example, women were more likely to be sexually inactive compared to men, Whites more than Blacks, those who did not attend college more than those who did, and in the East more than in the West.

Discussion

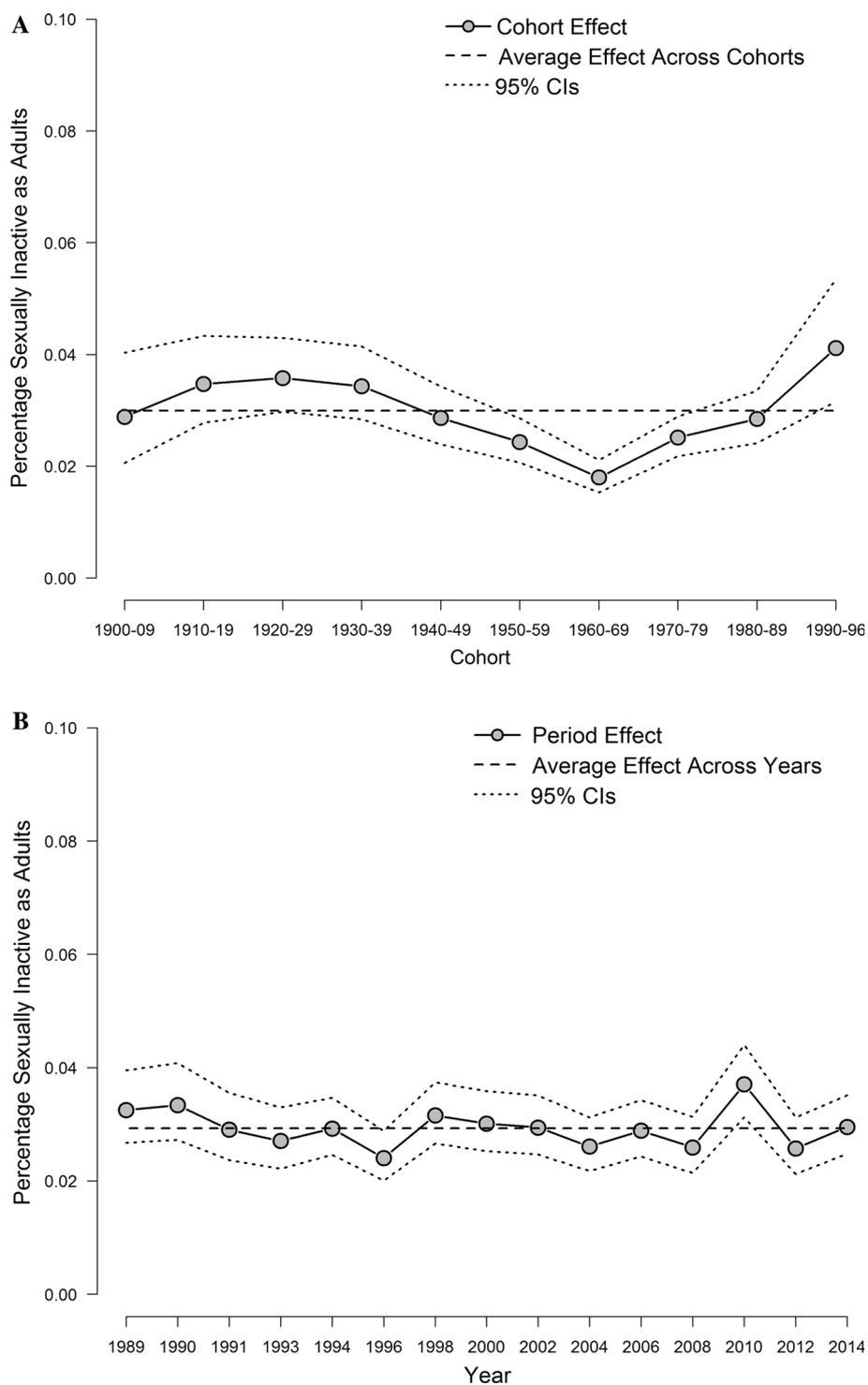
Millennials, especially those born in the 1990s, were significantly more likely to have no sexual partners as adults compared to GenX'ers born in the 1960s. This result held when age and time period were controlled using APC analysis, with twice as many sexually inactive participants among the 1990s cohort (Millennials and iGen) versus the 1960s cohort (early GenX). Most of the rise in sexual inactivity was due to cohort rather than time period.

Contrary to popular media conceptions of a “hookup generation” more likely to engage in frequent casual sex, a higher percentage of Millennials and iGen'ers reported no sexual partners as adults. These results demonstrate that Millennials and iGen'ers, who were less likely to be sexually active as teenagers than GenX'ers were (CDC, 2016), are also less likely to be sexually active as young adults. Thus, as well as being more likely to eschew marriage, stable careers, and living independently in their early 20s (Arnett, 2005), more Millennials and iGen'ers are also forgoing sex during emerging adulthood.

Americans born in the 1990s were the most likely to be sexually inactive in their early 20s, and showed a definite break with those born in the 1980s in the APC analyses. This suggests that those born in the 1990s should not be automatically grouped with the Millennials born in the 1980s. Other findings indicate that those born in the

³ APC analyses do not employ traditional statistical significance testing, though they can generate 95 % confidence intervals. Therefore, where appropriate, we examined whether the 95 % confidence intervals for two different means overlapped or not and used that as the determination of whether a difference was statistically significant.

Fig. 1 **A** Percentage of those having no sexual partners as adults by birth decade (cohort/generation), controlled for age and time period, and **B** percentage of having no sexual partners as adults by year (time period), controlled for age and cohort



1990s are growing up more slowly than those born in the 1980s (for example, fewer get a driver's license or work for pay), also suggesting a generational break at some point in the 1990s (e.g., Twenge & Park, 2016).

A variety of factors may explain increases in sexual inactivity in Millennials and iGen'ers compared to earlier generations. First, young adults are living with their parents for longer and marrying

later, both of which may delay sexual activity. Second, the rise of hookup culture may, paradoxically, help explain increased sexual inactivity. As others have noted, hooking up involves a variety of sexual behaviors, with vaginal sex somewhat less frequent than other sexual activities (Fielder & Carey, 2010; Reiber & Garcia, 2010). As such, Millennials and iGen may report more hooking up with partners to whom they are not committed (or with whom they

are not interested in pursuing a relationship), but largely engage in nonpenetrative behaviors that may actually make it easier to delay vaginal sex. The rise in sexual inactivity was driven primarily by those who did not attend college, and thus missed the hookup culture of many college campuses. However, sexual inactivity among those who attended college remained the same rather than declining as one might expect if the hookup culture led to more sexual activity.

Second, the HIV epidemic and associated public health messaging may have impacted later generations more, with more delaying sex and/or reducing their number of partners as a safety strategy. However, Sprecher and Treger (2015) examined college students between 1990 and 2012 and found that fear of AIDS as a reason for virginity peaked with those in college 1995–2000 (late GenX), and thus cannot explain higher rates of sexual inactivity among Millennials compared to GenX'ers. Third, increased rates of sexual inactivity in young adulthood may also speak to the influence of abstinence-focused education and cultural movements (i.e., purity pledges). Some (though certainly not all, i.e., Kirby, 2008) studies find delays in first sexual intercourse among those who received abstinence-only education and/or who pledged to remain virgins until marriage (Jemmott, Jemmott, & Fong, 2010; Martino et al., 2008), though some of this literature also indicates lower or comparable rates of safer sex behaviors and more negative sexual outcomes (i.e., unintended pregnancy) once sexual activity commences (Brückner & Bearman, 2005; Kohler et al., 2008), likely negating any potential benefits of delaying sexual intercourse.

It is important to understand these trends in the context of changing meanings of sexual inactivity and virginity. Although motivations for sexual inactivity have not changed considerably over time (Sprecher & Treger, 2015), reactions to first sexual intercourse have largely become more positive, particularly for women (Sprecher, 2014). Future research should examine motivations for and predictors of adult sexual inactivity among Millennials and iGen'ers, such as sexual nonattraction, asexuality, demographic characteristics, or physical characteristics (e.g., Haydon, Cheng, Herring, McRee, & Halpern, 2014; Høglund, Jem, Sandnabba, & Santtila, 2014) to better understand the nature of sexual inactivity in these generations. Further, attitudes about premarital sex have become more permissive over time (Twenge et al., 2015), which is an interesting contrast to more “conservative” behavior. This disconnect may speak to rising individualism wherein individuals hold permissive attitudes about a variety of behaviors while also feeling less pressure to conform in their own behavior (Twenge, 2014).

Adult sexual inactivity was also higher in the oldest cohorts. This could be caused by a number of factors. First, those who did not marry in these cohorts were more likely to be sexually inactive as adults compared to the unmarried in later cohorts. However, even among those who married, slightly more in these older cohorts still reported no sexual partners as adults. These cohorts married earlier (the median age for women marrying in the 1950s was 20); thus, it is possible that some married before age 18 and did not have sex with their spouse after age 18 (due to death, divorce, or choice). It is also

possible that these cohorts were more reluctant to discuss sex with the GSS interviewer. However, this would have been recorded not as zero but as “refused” (which was an uncommon response given by less than .4 % of participants). Another possibility is that individuals in these earlier cohorts who were gay or lesbian may have remained sexually inactive or been reluctant to admit to same-sex partners in the GSS interview more than members of later cohorts, who would be more open about same-sex activity (Twenge, Sherman, & Wells, 2016). As an additional possibility, selective mortality may have an impact if the sexually inactive live longer than the sexually active, as those born in the early decades of the 20th century were first surveyed as senior citizens (for example, someone born in 1915 was 74 in 1989, the first year these questions were asked). Finally, it is also possible that these older individuals were more likely to misunderstand the questions about sexual partners.

The moderating effects for gender, race, region, religiosity, and education were somewhat consistent with previous research and somewhat inconsistent. The lack of change in sexual inactivity rates among Blacks may be due to differential attitudes about sexual inactivity and premarital sexual behavior (Sprecher et al., 2013). The larger increase in sexual inactivity for women (vs. men) is inconsistent with previous research finding that men and women's sexual behaviors have become more similar (Petersen & Hyde, 2010; Wells & Twenge, 2005). On the other hand, virginity pledges focus more on girls/women, which is consistent with the larger increase in sexual inactivity for women. Religiosity was only a weak moderator, which is somewhat consistent with the paradoxical effects found by Regnerus and Uecker (2011), with more conservative attitudes but not necessarily more conservative behavior. The smaller increase in sexual inactivity among those with a college education could reflect the hookup culture in college settings.

Limitations

Participants may interpret the phrase “had sex with” in a variety of ways that may influence their response (Bersamin, Fisher, Walker, Hill, & Grube, 2007; Byers, Herderson, & Hobson, 2009). While some may use strict definitions of vaginal–penile intercourse to answer that question (and perhaps not endorse this item if they have engaged in anal but not vaginal sex), others may interpret sex much more broadly and respond affirmatively even if they have only engaged in oral sex. For example, Sanders and Reinisch (1999) found that 40 % of Americans included oral sex in their definition of “had sex.” Further, interpretations of this question may have changed over time. It is possible that earlier generations counted any sexual activity as sex, thus increasing their counts of partners, whereas younger generations, perhaps influenced by abstinence-focused education and purity pledges, may see sex as including only vaginal–penile penetration, thus leading them to report lower numbers of sexual partners. However, given that alternatives to vaginal intercourse such as oral sex were less common behaviors in previous eras (e.g., Grunseit et al., 2005), this seems unlikely.

Conclusions

Contrary to popular conceptions, more Americans in recent cohorts are not having sex as adults, with 15 % of those born in the 1990s sexually inactive since age 18 in their early 20s, twice as many as among those born in the 1960s. This effect remains when age and time period are controlled in an APC analysis including those of all ages. Americans are now strikingly more accepting of premarital sex, but more of those born in the 1990s in particular are nevertheless forgoing sex during young adulthood. The new sexual revolution has apparently left behind a larger segment of the generation than first thought.

Compliance with Ethical Standards

Conflict of interest Jean M. Twenge declares that she has no conflict of interest. Ryne A. Sherman declares that he has no conflict of interest. Brooke E. Wells declares that she has no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

References

- Arnett, J. J. (2005). *Emerging adulthood*. Oxford: Oxford University Press.
- Bates, D., Maechler, M., Bolker, B., & Walker, S. (2014). *lme4: Linear mixed-effects models using Eigen and S4*. R package version 1.1-7. <http://CRAN.R-project.org/package=lme4>. Accessed 5 July 2016.
- Bennett, S. E., & Assefi, N. P. (2005). School-based teenage pregnancy prevention programs: A systematic review of randomized controlled trials. *Journal of Adolescent Health, 36*, 72–81.
- Bersamin, M. M., Fisher, D. A., Walker, S., Hill, D. L., & Grube, J. W. (2007). Defining virginity and abstinence: Adolescents' interpretations of sexual behaviors. *Journal of Adolescent Health, 41*, 182–188.
- Brückner, H., & Bearman, P. (2005). After the promise: The STD consequences of adolescent virginity pledges. *Journal of Adolescent Health, 36*, 271–278.
- Byers, E. S., Henderson, J., & Hobson, K. M. (2009). University students' definitions of sexual abstinence and having sex. *Archives of Sexual Behavior, 38*, 665–674.
- Campbell, W. K., Campbell, S., Siedor, L. E., & Twenge, J. M. (2015). Generational differences are real and useful. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 8*, 324–408.
- Centers for Disease Control. (2016). *Trends in the prevalence of sexual behavior and HIV testing, National YTB5: 1991–2015*. http://www.cdc.gov/healthyouth/data/yrbbs/pdf/2015/ss6506_updated.pdf. Accessed 5 July 2016.
- Eaton, D. K., Lowry, R., Brener, N. D., Kann, L., Romero, L., & Wechsler, H. (2011). Trends in human immunodeficiency virus- and sexually transmitted disease-related risk behaviors among US high school students, 1991–2009. *American Journal of Preventive Medicine, 40*, 427–433.
- Fielder, R. L., & Carey, M. P. (2010). Prevalence and characteristics of sexual hookups among first-semester female college students. *Journal of Sex and Marital Therapy, 36*, 346–359.
- Finer, L. B., & Philbin, J. M. (2013). Sexual initiation, contraceptive use, and pregnancy among young adolescents. *Pediatrics, 131*, 886–891.
- Grunseit, A., Richters, J., Crawford, J., Song, A., & Kippax, S. (2005). Stability and change in sexual practices among first-year Australian university students (1990–1999). *Archives of Sexual Behavior, 34*, 557–568.
- Haydon, A. A., Cheng, M. M., Herring, A. H., McRee, A. L., & Halpern, C. T. (2014). Prevalence and predictors of sexual inexperience in adulthood. *Archives of Sexual Behavior, 43*, 221–230.
- Heywood, W., Patrick, K., Smith, A. M. A., & Pitts, M. K. (2015). Associations between early first sexual intercourse and later sexual and reproductive outcomes: A systematic review of population-based data. *Archives of Sexual Behavior, 44*, 531–569.
- Hoglund, J., Jern, P., Sandnabba, N. K., & Santtila, P. (2014). Finnish women and men who self-report no sexual attraction in the past 12 months: Prevalence, relationship status, and sexual behavior history. *Archives of Sexual Behavior, 43*, 879–889.
- Hull, S. J., Hennessy, M., Bleakley, A., Fishbein, M., & Jordan, A. (2011). Identifying the causal pathways from religiosity to delayed adolescent sexual behavior. *Journal of Sex Research, 48*, 543–553.
- Jemmott, J. B., Jemmott, L. S., & Fong, G. T. (2010). Efficacy of a theory-based abstinence-only intervention over 24 months: A randomized controlled trial with young adolescents. *Archives of Pediatrics and Adolescent Medicine, 164*, 152–159.
- Jung, J. H. (2015). A cross-national analysis of religion and attitudes toward premarital sex: Do economic contexts matter? *Sociological Perspectives*. doi:10.1177/0731121415595428.
- Kaplan, D. L., Jones, E. J., Olson, E. C., & Yunzal-Butler, C. B. (2013). Early age of first sex and health risk in an urban adolescent population. *Journal of School Health, 83*, 350–356.
- Kirby, D. B. (2008). The impact of abstinence and comprehensive sex and STD/HIV education programs on adolescent sexual behavior. *Sexuality Research & Social Policy, 5*, 18–27.
- Kohler, P. K., Manhart, L. E., & Lafferty, W. E. (2008). Abstinence-only and comprehensive sex education and the initiation of sexual activity and teen pregnancy. *Journal of Adolescent Health, 42*, 344–351.
- Kuperberg, A., & Padgett, J. E. (2016). Partner meeting contexts and risky behavior in college students' other-sex and same-sex hookups. *Journal of Sex Research*. doi:10.1080/00224499.2015.1124378.
- Lerner, J. E., & Hawkins, R. L. (2016). Welfare, liberty, and security for all? U.S. sex education policy and the 1996 Title V Section 510 of the Social Security Act. *Archives of Sexual Behavior, 45*, 1027–1038.
- Magnusson, B. M., Masho, S. W., & Lapane, K. L. (2012). Early age at first intercourse and subsequent gaps in contraceptive use. *Journal of Women's Health, 21*, 73–79.
- Martino, S. C., Elliott, M. N., Collins, R. L., Kanouse, D. E., & Berry, S. H. (2008). Virginity pledges among the willing: Delays in first intercourse and consistency of condom use. *Journal of Adolescent Health, 43*, 341–348.
- Monto, M. A., & Carey, A. G. (2014). A new standard of sexual behavior? Are claims associated with the “hookup culture” supported by General Social Survey data? *Journal of Sex Research, 51*, 605–615.
- Petersen, J. L., & Hyde, J. S. (2010). A meta-analytic review of research on gender differences in sexuality, 1993–2007. *Psychological Bulletin, 136*(1), 21–38.
- Pew Research Center. (2014). *Millennials in adulthood: Detached from institutions, networked with friends*. Retrieved March 7, 2014 from <http://www.pewsocialtrends.org/2014/03/07/millennials-in-adulthood/>.
- Pew Research Center. (2015). *More Millennials living with family despite improved job market*. Retrieved July 29, 2015 from <http://www.pewsocialtrends.org/2015/07/29/more-millennials-living-with-family-despite-improved-job-market/>.

- R Core Team. (2014). *R: A language and environment for statistical computing* [Computer software]. Vienna: R Foundation for Statistical Computing.
- Regnerus, M., & Uecker, J. (2011). *Premarital sex in America: How young Americans meet, mate, and think about marrying*. Oxford: Oxford University Press.
- Reiber, C., & Garcia, J. R. (2010). Hooking up: Gender differences, evolution, and pluralistic ignorance. *Evolutionary Psychology*, 8, 390–404.
- Rosenbaum, J. E. (2009). Patient teenagers? A comparison of the sexual behavior of virginity pledgers and matched nonpledgers. *Pediatrics*, 123, e110–e120.
- Rostosky, S. S., Regnerus, M. D., & Wright, M. L. C. (2003). Coital debut: The role of religiosity and sex attitudes in the Add Health Survey. *Journal of Sex Research*, 40, 358–367.
- Rudder, C. (2009). *Your looks and your inbox*. Retrieved November 7, 2009 from <http://blog.okcupid.com/index.php/your-looks-and-online-dating/#>.
- Rudder, C. (2014). *Dataclysm: Who we are (when we think no one's looking)*. New York: Random House.
- Sales, N. J. (2015, September). Tinder and the dawn of the “dating apocalypse.” *Vanity Fair*.
- Sanders, S. A., & Reinisch, J. M. (1999). Would you say you “had sex” if...? *Journal of the American Medical Association*, 281, 275–277.
- Sandfort, T. G., Orr, M., Hirsch, J. S., & Santelli, J. (2008). Long-term health correlates of timing of sexual debut: Results from a national US study. *American Journal of Public Health*, 98, 155–161.
- Schaie, K. W. (1986). Beyond calendar definitions of age, time, and cohort: The general developmental model revisited. *Developmental Review*, 6, 252–277.
- Sheeran, P., Abrams, D., Abraham, C., & Spears, R. (1993). Religiosity and adolescents' premarital sexual attitudes and behaviour: An empirical study of conceptual issues. *European Journal of Social Psychology*, 23, 39–52.
- Smith, T. W., Marsden, P., Hout, M., & Kim, J. (2015). *General Social Surveys, 1972–2014 [machine-readable data file]*. Chicago: NORC at the University of Chicago [producer]; Storrs, CT: The Roper Center for Public Opinion Research, University of Connecticut [distributor].
- Sprecher, S. (2014). Evidence of change in men's versus women's emotional reactions to first sexual intercourse: A 23-year study in a human sexuality course at a midwestern university. *Journal of Sex Research*, 51, 466–472.
- Sprecher, S., & Treger, S. (2015). Virgin college students' reasons for and reactions to their abstinence from sex: Results from a 23-year study at a Midwestern US University. *Journal of Sex Research*, 52, 936–948.
- Sprecher, S., Treger, S., & Sakaluk, J. K. (2013). Premarital sexual standards and sociosexuality: Gender, ethnicity, and cohort differences. *Archives of Sexual Behavior*, 42, 1395–1405.
- Stapp, L. S. (2008). *Unhooked: How young women pursue sex, delay love, and lose at both*. New York: Riverhead Books.
- Strauss, W., & Howe, N. (1991). *Generations*. New York: Random House.
- Twenge, J. M. (2014). *Generation me: Why today's young Americans are more confident, assertive, entitled—and more miserable than ever before* (2nd ed.). New York: Atria Books.
- Twenge, J. M., & Park, H. (2016). *Generational differences in the speed of development during adolescence: The decline in independent activities, 1976–2015*. Unpublished manuscript.
- Twenge, J. M., Sherman, R. A., & Wells, B. E. (2015). Changes in American adults' sexual behavior and attitudes, 1972–2012. *Archives of Sexual Behavior*, 44, 2273–2285.
- Twenge, J. M., Sherman, R. A., & Wells, B. E. (2016). Changes in American adults' reported same-sex sexual experiences and attitudes, 1973–2014. *Archives of Sexual Behavior*. doi:10.1007/s10508-016-0769-4.
- Vazsonyi, A. T., & Jenkins, D. D. (2010). Religiosity, self-control, and virginity status in college students from the “Bible Belt”: A research note. *Journal for the Scientific Study of Religion*, 49, 561–568.
- Wells, B. E., & Twenge, J. M. (2005). Changes in young people's sexual behavior and attitudes, 1943–1999: A cross-temporal meta-analysis. *Review of General Psychology*, 9, 249–261.
- Yang, Y. (2008). Social inequalities in happiness in the United States, 1972 to 2004: An age-period-cohort analysis. *American Sociological Review*, 73, 204–226.
- Yang Y. & Land K. C. (2013). *Age-period-cohort analysis: New models, methods, and empirical applications*. Boca Raton, FL: CRC Press.