

Associations of Partner Age Gap at Sexual Debut with Teenage Parenthood and Lifetime Number of Partners

CONTEXT: Age at sexual debut and age gap between partners at debut are modifiable characteristics that may be related to risky sexual behaviors. Understanding any such relationships is a necessary first step toward strengthening risk interventions.

METHODS: Age at sexual debut and partner age gap were examined for 3,154 female and 2,713 male respondents to the 2011–2013 National Survey of Family Growth who first had intercourse before age 18. Multivariable logistic regression was used to assess associations between these measures and teenage parenthood and reporting a high lifetime number of partners (i.e., a number above the sample median).

RESULTS: Females' odds of teenage parenthood were elevated if sexual debut occurred at ages 15–17 and involved a partner age gap of 3–4 years (odds ratio, 1.8) or more (2.0); they were reduced if debut occurred before age 15 and the gap was 3–4 years (0.8). Females' likelihood of reporting a high lifetime number of partners was negatively associated with age gap (0.4–0.7, depending on age at debut and length of age gap). Males' likelihood of reporting a large number of partners was positively associated with age gap if sexual debut was before age 15 and the gap was five or more years (1.7) or if debut was at ages 15–17 and involved a 3–4-year gap (2.0).

CONCLUSION: Identifying the mechanisms underlying these associations could inform program design and implementation.

Perspectives on Sexual and Reproductive Health, 2017, 49(2):77–83, doi:10.1363/psrh.12022

By Saba W. Masho, Gregory J. Chambers, Jordyn T. Wallenborn and Jacquelyn L. Ferrance

Saba W. Masho is professor, Gregory J. Chambers and Jordyn T. Wallenborn are research assistants, and Jacquelyn L. Ferrance is project evaluator, all at the Department of Family Medicine and Population Health, Division of Epidemiology, School of Medicine, Virginia Commonwealth University, Richmond.

Teenage parenthood and having a high number of sexual partners are risky sexual behaviors that are tied to significant public health problems. Children born to teenage mothers are more likely than others to have poor health; be physically abused, abandoned or neglected; and grow up in a household without a father.¹ Furthermore, teenage mothers often do not achieve their full educational, employment or, therefore, earning potential.² Similarly, having a large lifetime number of partners has been associated with adverse health outcomes, including an increased probability of STDs, and a reduced probability of personal happiness.³ While research has extensively investigated characteristics associated with teenage pregnancy and lifetime number of partners, two potential correlates—age difference between partners at sexual debut and age at sexual debut—have received little attention.

Age difference between sexual partners (partner age gap) is known to play an important role in determining health risks.^{4–6} Having an older sexual partner leads to lower rates of contraceptive use, riskier sexual behavior and more victimization in a relationship.^{4,5,7–10} Additionally, female adolescents who have older partners have disproportionately high rates of unintended pregnancies.¹¹ However, to our knowledge, only three studies inform current understanding of partner age gap at sexual debut in relation to risky sexual behaviors.^{5,12,13} Senn and Carey reported that partner age gap at sexual debut was positively associated with the frequency of unprotected sex among females attending

an STD clinic.⁵ However, their study excluded males and used a sample that is not generalizable.

The other two studies analyzed nationally representative data, but produced somewhat inconsistent results. Manlove et al. concluded that a partner age gap of five or more years at sexual debut was associated with decreased condom use in females, but was not associated with teenage parenthood for either sex; the study may have lacked the power to find an association.¹² At the same time, Manlove et al. found higher odds of teenage birth for females who reported sexual debut before age 16 and a partner age gap of 3–4 years, but no association among females with a partner age gap of less than three years or those whose debut occurred at age 16 or later. Ryan et al. reported that a gap of three or more years was positively associated with the likelihood of STDs and teenage births in females who debuted before age 16.¹³ These studies did not investigate the association between age gap at sexual debut and lifetime number of sexual partners, which is an important correlate of later sexual health.¹⁴

The findings of Manlove et al.¹² and Ryan et al.¹³ show that associations differed by age at sexual debut, suggesting that this characteristic may be a moderator. Further, a study by Heywood et al. has established that correlates of sexual debut at an early age differ from those of sexual debut in late adolescence.¹⁵ One possible explanation for this finding is that older partners may push younger partners into early sexual debut. However, what constitutes “early” sexual debut is inconsistently defined in the literature¹⁵:

While some studies have examined sexual debut before and after the age of 16,^{12,13} others have used earlier cutoffs.^{16,17} Nonetheless, sexual debut before age 16 is relatively normative and warrants examination.¹⁸

In light of recent estimates, investigating sexual behaviors among adolescents is an important public health priority. A descriptive analysis using National Health and Nutrition Examination Surveys reported that among 14–19-year-olds, 51% of females and 56% of males said that they had had three or more partners.¹⁷ Further, the Centers for Disease Control and Prevention has estimated that the birthrate for U.S. women aged 15–19 is 24.2 per 1,000—substantially higher than teenage birthrates in other industrialized nations.¹⁸ Considering that age at sexual debut and partner age gap at sexual debut are modifiable, understanding their interrelationships with teenage parenthood and lifetime number of partners is a necessary first step toward strengthening sexual risk interventions. Therefore, this study examines the associations of partner age gap at sexual debut with teenage parenthood and lifetime number of partners, and assesses the moderation effect of age at sexual debut, in the United States.

METHODS

Sample

The current study analyzed data from the 2011–2013 National Survey of Family Growth (NSFG). The cross-sectional survey was designed to provide information on family life, relationships and reproductive health among U.S. men and women aged 15–44; it oversampled blacks, Hispanics and teenagers. All survey questions used in this study were administered by an in-person interviewer.¹⁹ Although the questionnaires used for males and females were similar, the samples of males and females were drawn separately, and the two data sets were independent. Further description of the NSFG can be found elsewhere.²⁰

We limited our sample to respondents who reported sexual debut before the age of 18 (2,849 males and 3,210 females). We based this cutoff on the federal definition of a minor (younger than 18), as age of consent varies by state.²¹ Some 121 males and 52 females were excluded because partner age gap at sexual debut or the outcomes of interest (teenage parenthood, lifetime number of partners) could not be determined; respondents who had been three or more years older than their partner were also excluded, because their numbers were small (15 males and four females). The final samples thus included 2,713 males and 3,154 females.

Measures

• **Exposure and outcomes.** In this study, sexual debut was defined as first vaginal intercourse. The exposure variable, age gap at sexual debut, was calculated by subtracting respondents' age at sexual debut from their partner's age. Consistent with previous literature,¹² age gap was categorized as none (less than three years), 3–4 years, or five or more years.

The outcomes of interest were determined using self-reported survey items. Teenage parenthood, defined as having given birth or fathered a child before age 20, was dichotomized. The variable was recoded by the NSFG and available for analysis in the data set. Lifetime number of partners was based on the recoded variable "number of opposite-sex partners in lifetime," and was dichotomized using the median number for each sample (fewer than five vs. five or more for females, and fewer than nine vs. nine or more for males). The sex-specific categorization for this variable was used because males report more lifetime partners than females.²²

• **Covariates.** Participants' social and demographic characteristics at the time of interview were used to describe the sample. They were not considered as potential confounders since they do not affect sexual debut. These characteristics were age at interview (categorized as 15–24, 25–34 or 35–44), income as a percentage of the federal poverty level (below 100%, 100–199%, or 200% or more), education (less than high school, high school, or some college or higher) and marital status (married, living together, formerly married or never-married).

Covariates assessed as possible confounders included race (white, black or other), family structure through age 18 (two biological or adoptive parents, or any other arrangement), maternal education (less than high school, high school, some college or higher), religion the respondent had been raised in (none, Catholic, Protestant or other) and whether the respondent's mother had been a teenage mother. Age at sexual debut was arbitrarily dichotomized at the mean age for females in the sample (before 15 or at 15–17). Other covariates were wantedness of sexual debut (wanted, unsure or unwanted), relationship with partner at sexual debut (committed relationship or other) and use of any contraceptive method at sexual debut. A committed relationship was defined as one in which the partners were married, engaged, cohabiting or going steady. Voluntary sexual debut (a dichotomous variable)* and length of time between first and last sex with the first partner (less than one year, 1–2 years, or three or more years) were included as possible confounders for females, but were not ascertained for males.

Analysis

Separate analyses were conducted for males and females because of the NSFG's complex sampling procedure. We used weighted percentages and unweighted frequencies to examine the distribution of the population by selected characteristics, and chi-square analysis to assess bivariate relationships between variables of interest and age gap at sexual debut. Age at sexual debut was found to be an effect modi-

*Voluntary debut and wantedness were both included as potential confounders because of the high proportion of females (62%) who reported having had mixed feelings about or having not wanted sexual debut even though they described it as voluntary.

fier; therefore, all analyses were stratified by age at sexual debut. This strategy was supported by previous literature demonstrating that early debut is associated with negative sexual health outcomes and risky sexual behavior.²³ Race was also found to modify some associations, but stratified analyses were not possible because of small cell sizes.

Logistic regression was used to obtain crude and adjusted odds ratios and 95% confidence intervals. The final adjusted models included covariates that were associated with the exposure and outcome and that showed at least a 10% change in the crude estimate.²⁴ Models that took into consideration all potential confounders were also examined; however, findings from these models were nearly identical to those from the more parsimonious ones, so findings from the latter are reported.

All analyses were performed using SAS version 9.4. This study was deemed exempt by Virginia Commonwealth University's institutional review board.

RESULTS

Sample Description

In both the female and the male samples, more than a third of respondents were between the ages of 25 and 34; about half had an income at least twice the federal poverty level; and the majority had at least a high school education, were unmarried and were white (Table 1). Roughly four in 10 in each sample said that their mother had given birth as a teenager, and eight in 10 reported that she had had at least a high school education. Forty-eight percent of females and 53% of males had grown up in intact families; most reported a Protestant or Catholic upbringing.

Twenty-four percent of females and 34% of males had their sexual debut before they were 15 years old; 73% and 46%, respectively, said that they had been in a committed relationship with their first partner. Some 35% of females and 70% of males said that their first experience of

TABLE 1. Percentage distribution of respondents who reported sexual debut before age 18, by selected characteristics, according to sex, National Survey of Family Growth, United States, 2011–2013

Characteristic	Female (N=3,154)	Male (N=2,713)	Characteristic	Female (N=3,154)	Male (N=2,713)
Age			Age at sexual debut		
15–24	29.7	28.7	<15	24.4	33.5
25–34	35.2	37.0	15–17	75.6	66.5
35–44	35.2	34.3			
Income as % of poverty level			Relationship with sexual debut partner		
<100%	31.1	20.9	Committed	73.0	46.0
100–199%	22.8	22.0	Other	27.0	54.0
≥200%	46.1	57.1			
Education			Wantedness of sexual debut		
<high school	21.4	25.6	Wanted	34.8	70.3
High school	26.4	28.1	Unsure	51.1	23.6
>high school	52.2	46.3	Unwanted	14.2	6.1
Marital status			Used contraceptive at sexual debut		
Married	37.4	36.5	Yes	68.9	73.2
Living with partner	19.3	18.3	No	31.1	26.8
Formerly married	11.3	7.8			
Never-married	32.0	37.4	Voluntary sexual debut		
			Yes	92.0	u
Race			No	8.0	u
White	73.8	69.4			
Black	17.7	18.6	Length of first sexual relationship		
Other	8.5	12.1	<1 year	50.0	u
			1–2 years	24.3	u
Mother was teenage mother			≥3 years	25.6	u
Yes	38.6	38.2			
No	61.4	61.8	Partner age gap at sexual debut		
			None	69.6	85.9
Maternal education			3–4 years	17.2	8.3
<high school	22.0	19.7	≥5 years	13.1	5.8
High school	34.2	39.2			
>high school	43.8	41.1	Teenage parent		
			Yes	29.6	10.9
Family structure through age 18			No	70.4	89.1
Intact	48.3	52.6			
Not intact	51.7	47.4	Lifetime partners		
			<median	40.5	48.0
Religious background			≥median	59.5	52.0
None	11.5	10.8			
Catholic	31.9	34.6	Total	100.0	100.0
Protestant	50.0	48.2			
Other	6.6	6.4			

Notes: Percentages may not add to 100.0 because of rounding. Percentages are weighted. The median lifetime number of partners was five for females and nine for males. u=unavailable, because the question was not asked.

intercourse had been wanted; 69% and 73% reported that they or their partner had used a contraceptive. Nearly all females reported that their sexual debut had been voluntary; half said that their relationship with their first partner lasted less than one year. The majority of respondents (70% of females and 86% of males) reported no partner age gap at sexual debut; 30% of females and 11% of males had been teenage parents. Three-fifths of females had had five or more partners, and half of males had had nine or more.

Age Gap and Outcomes

• *Correlates of age gap.* In bivariate analyses of the data for females, all variables except lifetime number of partners were associated with age gap at sexual debut (Table 2). For males, age gap was associated with age at interview; education; having a mother who had been a teenage mother;

age, relationship with partner and contraceptive use at sexual debut; teenage parenthood; and lifetime number of partners.

• *Teenage parenthood.* For females, the unadjusted analyses showed that age gaps of 3–4 years and of five or more years were associated with the likelihood of teenage parenthood regardless of age at sexual debut (Table 3). After adjustment for contraceptive use at sexual debut, all associations remained significant except that among females who debuted before 15 years of age and had an age gap of five or more years. Among females who reported sexual debut at 15–17 years of age, the odds of teenage parenthood were higher if there had been a 3–4-year partner age gap than if there had been none (odds ratio, 1.8); the differential was even greater if there had been a gap of five or more years (2.0). Among females

TABLE 2. Percentage distribution of respondents, by partner age gap at sexual debut, according to selected characteristics

Characteristic	Female				Male			
	≥5	3–4	None	Total	≥5	3–4	None	Total
Age***, †								
15–24	9.1	15.2	75.6	100.0	3.2	7.3	89.5	100.0
25–34	13.6	15.4	71.0	100.0	5.5	8.3	86.2	100.0
35–44	16.0	20.8	63.2	100.0	8.4	9.0	82.7	100.0
Income as % of poverty level**								
<100%	17.2	20.8	62.0	100.0	7.0	9.0	84.0	100.0
100–199%	11.7	18.4	70.0	100.0	8.0	8.6	83.4	100.0
≥200%	11.1	14.3	74.6	100.0	4.5	7.9	87.6	100.0
Education***, ††								
<high school	19.1	19.9	61.0	100.0	8.8	9.9	81.2	100.0
High school	12.1	18.8	69.1	100.0	5.8	9.8	84.4	100.0
>high school	11.2	15.4	73.5	100.0	4.1	6.4	89.5	100.0
Marital status*								
Married	14.7	17.0	68.2	100.0	6.6	9.3	84.1	100.0
Living with partner	13.5	16.3	70.3	100.0	9.4	8.1	82.4	100.0
Formerly married	20.0	21.1	59.0	100.0	7.3	10.0	82.8	100.0
Never-married	8.6	16.7	74.7	100.0	2.9	7.0	90.1	100.0
Race*								
White	12.4	16.8	70.8	100.0	5.4	7.9	86.7	100.0
Black	12.5	20.2	67.2	100.0	6.3	11.6	82.1	100.0
Other	20.1	15.1	64.8	100.0	7.3	5.5	87.2	100.0
Mother was teenage mother**, ††								
Yes	15.5	19.3	65.2	100.0	8.2	9.1	82.7	100.0
No	11.0	16.0	73.0	100.0	4.3	7.5	88.2	100.0
Maternal education***								
<high school	17.9	20.2	61.8	100.0	8.2	7.5	84.4	100.0
High school	13.0	16.9	70.1	100.0	6.0	7.6	86.4	100.0
>high school	10.2	16.2	73.6	100.0	4.5	8.7	86.8	100.0
Family structure through age 18*								
Intact	12.6	14.8	72.5	100.0	5.0	6.4	88.6	100.0
Not intact	13.6	19.5	67.0	100.0	6.6	10.4	83.0	100.0
Religious background**								
None	13.0	15.3	71.7	100.0	5.1	8.2	86.7	100.0
Catholic	14.0	18.3	67.8	100.0	6.4	8.1	85.6	100.0
Protestant	11.0	17.1	71.9	100.0	5.0	7.8	87.2	100.0
Other	24.1	17.9	58.1	100.0	8.7	13.2	78.0	100.0
Age at sexual debut***, †††								
<15	19.4	30.3	50.2	100.0	11.0	15.2	73.8	100.0
15–17	11.1	13.0	75.9	100.0	3.0	4.8	92.2	100.0

Table continues

TABLE 2 (continued)

Characteristic	Female (%)				Male (%)			
	≥5	3–4	None	Total	≥5	3–4	None	Total
Relationship with sexual debut partner***,†††								
Committed	9.3	16.1	74.6	100.0	1.2	3.5	95.3	100.0
Other	22.4	20.5	57.0	100.0	9.7	12.4	77.9	100.0
Wantedness of sexual debut**								
Wanted	14.4	14.5	71.1	100.0	5.4	8.5	86.1	100.0
Unsure	10.6	18.8	70.6	100.0	6.7	6.8	86.5	100.0
Unwanted	20.9	20.6	58.5	100.0	7.8	10.1	82.1	100.0
Used contraceptive at sexual debut***,†††								
Yes	10.3	14.2	75.4	100.0	4.3	7.3	88.4	100.0
No	19.0	24.1	56.9	100.0	9.6	10.3	80.2	100.0
Voluntary sexual debut***								
Yes	11.8	17.2	71.0	100.0	u	u	u	100.0
No	31.9	20.9	47.2	100.0	u	u	u	100.0
Length of first sexual relationship*								
<1 year	13.8	17.3	69.0	100.0	u	u	u	100.0
1–2 years	8.6	17.7	73.7	100.0	u	u	u	100.0
≥3 years	16.1	16.8	67.1	100.0	u	u	u	100.0
Teenage parent***,††								
Yes	18.6	21.6	59.8	100.0	11.0	11.2	77.8	100.0
No	10.8	15.4	73.8	100.0	5.2	7.9	86.9	100.0
Lifetime partners†††								
<median	13.1	16.4	70.5	100.0	4.3	5.5	90.2	100.0
≥median	13.1	17.8	69.1	100.0	7.2	10.8	82.0	100.0

*Distributions for females differ at $p < .05$. **Distributions for females differ at $p < .01$. ***Distributions for females differ at $p < .001$. †Distributions for males differ at $p < .05$. ††Distributions for males differ at $p < .01$. †††Distributions for males differ at $p < .001$. Notes: Percentages may not add to 100.0 because of rounding. Percentages are weighted. The median lifetime number of partners was five for females and nine for males. u=unavailable, because the question was not asked.

who reported a sexual debut before age 15 and a 3–4-year partner age gap, the odds of teenage parenthood were reduced (0.8).

In males, there were no significant associations between partner age gap and teenage parenthood.

•**Lifetime number of partners.** In females, the unadjusted analyses showed a significant inverse association between partner age gap and lifetime number of partners for those who debuted before age 15 and reported a gap of five or more years. After adjustment for type of relationship with sexual debut partner and voluntariness of sexual debut, inverse associations were found between partner age gap and lifetime number partners for those whose debut occurred before age 15 and involved a gap of five or more years (odds ratio, 0.4) and for those who debuted at 15–17 years of age and reported a 3–4-year age gap (0.7).

In males, the unadjusted analysis revealed associations between partner age gap and lifetime number of partners, although results differed by age at sexual debut. After adjustment for contraceptive use at sexual debut, the associations remained, but were slightly attenuated. Among males who debuted before age 15, the odds of having had nine or more sexual partners were higher among those reporting an age gap of five or more years than among those reporting no age gap (odds ratio, 1.7). For males who debuted at ages 15–17, a 3–4-year age gap was associated with elevated odds of this outcome (2.0).

DISCUSSION

The current study found that associations between age gap at sexual debut and poor sexual health outcomes vary by sex and age at sexual debut.

Our findings of a positive association between partner age gap and teenage parenthood among females who first had intercourse at 15–17 years of age are consistent with those of studies that have reported that having an older sexual partner during adolescence was positively associated with teenage pregnancy in females, and that the association increased as the age gap increased.^{7,11,13} One possible explanation for this association is power imbalances caused by traditional societal gender expectations or a threat of violence. Young females may not feel safe or comfortable confronting male partners about sexual behaviors or attitudes (e.g., regarding contraceptive use), and this may lead to loss of control over sexual health.^{25–27} A wider age gap may exacerbate this problem, as it may give more power to the older partner.²⁸ Although the women in our study who reported teenage parenthood may not have become pregnant with their sexual debut partner, our findings illustrate that a complex relationship exists among partner age gap, sexual debut and teenage parenthood.

We also found that among females whose sexual debut occurred before age 15, those reporting a partner age gap of 3–4 years had reduced odds of having been teenage parents. A negative association among females who debut at earlier ages is unexpected, since these females are at risk for teenage pregnancy for a longer duration than females who

TABLE 3. Odds ratios (and 95% confidence intervals) from multivariate logistic regression analyses assessing associations between partner age gap at sexual debut and selected outcomes, by age at debut, according to sex

Age gap	Teenage parenthood				≥median lifetime no. of partners			
	Debut at age <15		Debut at ages 15–17		Debut at age <15		Debut at ages 15–17	
	Unadjusted	Adjusted†	Unadjusted	Adjusted†	Unadjusted	Adjusted‡	Unadjusted	Adjusted‡
Females								
None (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3–4 years	0.84*** (0.78–0.90)	0.78*** (0.73–0.85)	1.97*** (1.42–2.73)	1.75*** (1.29–2.38)	1.09 (0.79–1.50)	0.91 (0.58–1.44)	0.82 (0.65–1.04)	0.71* (0.54–0.94)
≥5 years	1.25* (1.00–1.55)	1.17 (0.97–1.41)	2.23*** (1.42–3.51)	1.97** (1.21–3.19)	0.80* (0.66–0.97)	0.43*** (0.36–0.50)	0.93 (0.67–1.28)	0.76 (0.50–1.16)
Males								
None (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3–4 years	1.32 (0.74–2.37)	0.95 (0.60–1.51)	0.82 (0.55–1.22)	0.73 (0.41–1.30)	1.49 (0.96–2.31)	1.51 (0.94–2.43)	2.12*** (1.45–3.10)	1.99*** (1.46–2.71)
≥5 years	1.86 (0.80–4.27)	1.68 (0.78–3.57)	1.80 (0.75–4.34)	1.75 (0.60–5.13)	1.92** (1.29–2.85)	1.71** (1.15–2.54)	0.88 (0.44–1.77)	0.74 (0.32–1.72)

* $p < .05$. ** $p < .01$. *** $p < .001$. †Models for females adjusted for contraceptive use at sexual debut; models for males adjusted for type of relationship with first sexual partner and whether the respondent's mother had given birth as a teenager. ‡Models for females adjusted for type of relationship with first sexual partner and voluntariness of sexual debut; models for males adjusted for contraceptive use at sexual debut. Notes: Median lifetime number of partners was five for females and nine for males. ref=reference group.

debut at later ages.²⁹ Additionally, previous research has demonstrated that as age at sexual debut decreases, having a partner age gap is associated with an increased likelihood of teenage parenthood.¹² The differences we found in associations by age at sexual debut could suggest that different mechanisms may be involved in mediating the association depending on age at first intercourse.

The current study also showed that lifetime number of partners had a negative association with a partner age gap of 3–4 years in females who debuted at ages 15–17 and with a gap of five or more years in females who debuted before age 15. Although these results are inconsistent with those of other work,^{13,30} one possible explanation is that relationships with older males may last longer and reduce the chance to have other partners.^{31,32} Alternatively, an imbalance of power within between partners could prevent the female from leaving or having sex outside the relationship.³³

Our results for males also demonstrated an association between partner age gap and lifetime number of partners. Although no previous studies that we are aware of have investigated age gap and lifetime number of partners among male adolescents, our results are consistent with studies demonstrating associations between partner age gap and poor or risky sexual health outcomes.^{7,34} Previous research has suggested that sexual debut and subsequent risky behavior may be predicted by an inclination toward risky lifestyles.⁷ Thus, risk seeking may be an antecedent, which explains the association between sexual debut with an older partner and increased lifetime number of partners.

Strengths and Limitations

Sexual debut and age gap are understudied in males. Our study explored the relationship between age gap at sexual debut and health outcomes among males and females

independently. It also used a nationally representative sample and a larger sample than the only other comparable study that we are aware of,¹² and thus provided us more power to detect significant associations.

Despite the apparent strengths, this study has some limitations. Because the NSFG is conducted separately for each sex, direct comparisons between males and females could not be made. In addition, two potentially important confounders were not assessed for males: voluntariness of sexual debut and duration of the relationship with the partner at debut. Furthermore, there was an insufficient sample size to explore effect modification by race. Like previous studies, ours did not account for a respondent's inclination toward risky behavior that could be linked to early debut, age gap and poor sexual health outcomes.^{7,13} Because data used in this analysis were self-reported, recall and social desirability bias could impact the findings. Finally, the cross-sectional nature of the study prevents causal inference, and temporality cannot be established.

Conclusion

This study supports the assertion that an age gap at sexual debut is associated with long-term sexual health outcomes in both males and females. Wide age gaps are generally believed to be exploitive and associated with increased health risks in the younger partner;⁸ however, this study presents a more complex picture of age gap, age at sexual debut, sex, and teenage parenthood and lifetime number of sexual partners. Future research is needed to understand the associations found here, since these may be explained by unhealthy power imbalances in young people's relationships. Understanding the mechanisms underlying these associations could inform program design and implementation.

REFERENCES

1. Sulak PJ, Adolescent sexual health, *Journal of Family Practice*, 2004, 53(7, Suppl.):S3–S4.
2. Hofferth SL, Social and economic consequences of teenage child-bearing, in: Hofferth SL and Hayes CD, *Risking the Future: Adolescent Sexuality, Pregnancy, and Childbearing*, Vol. 2, Washington, DC: National Academy Press, 1987, pp. 123–144.
3. Rector RE et al., *The Harmful Effects of Early Sexual Activity and Multiple Sexual Partners Among Women: A Book of Charts*, Washington, DC: Heritage Foundation, 2003.
4. Staras SA, Cook RL and Clark DB, Sexual partner characteristics and sexually transmitted diseases among adolescents and young adults, *Sexually Transmitted Diseases*, 2009, 36(4):232–238.
5. Senn TE and Carey MP, Age of partner at first adolescent intercourse and adult sexual risk behavior among women, *Journal of Women's Health*, 2011, 20(1):61–66.
6. Ford K, Sohn W and Lepkowski J, Characteristics of adolescents' sexual partners and their association with use of condoms and other contraceptive methods, *Family Planning Perspectives*, 2001, 33(3):100–105 & 132.
7. Oudekerk BA, Guarnera LA and Reppucci ND, Older opposite-sex romantic partners, sexual risk, and victimization in adolescence, *Child Abuse & Neglect*, 2014, 38(7):1238–1248.
8. Abma J, Driscoll A and Moore K, Young women's degree of control over first intercourse: an exploratory analysis, *Family Planning Perspectives*, 1998, 30(1):12–18.
9. Lindberg LD and Maddow-Zimet I, Consequences of sex education on teen and young adult sexual behaviors and outcomes, *Journal of Adolescent Health*, 2012, 51(4):332–338.
10. Manning WD, Longmore MA and Giordano PC, The relationship context of contraceptive use at first intercourse, *Family Planning Perspectives*, 2000, 32(3):104–110.
11. Darroch JE, Landry DJ and Oslak S, Age differences between sexual partners in the United States, *Family Planning Perspectives*, 1999, 31(4):160–167.
12. Manlove J, Terry-Humen E and Ikramullah E, Young teenagers and older sexual partners: correlates and consequences for males and females, *Perspectives on Sexual and Reproductive Health*, 2006, 38(4):197–207.
13. Ryan S et al., Older sexual partners during adolescence: links to reproductive health outcomes in young adulthood, *Perspectives on Sexual and Reproductive Health*, 2008, 40(1):17–26.
14. Burk RD et al., Sexual behavior and partner characteristics are the predominant risk factors for genital human papillomavirus infection in young women, *Journal of Infectious Diseases*, 1996, 174(4):679–689.
15. Heywood W et al., Associations between early first sexual intercourse and later sexual and reproductive outcomes: a systematic review of population-based data, *Archives of Sexual Behavior*, 2015, 44(3):531–569.
16. Kastbom ÅA et al., Sexual debut before the age of 14 leads to poorer psychosocial health and risky behavior in later life, *Acta Paediatrica*, 2015, 104(1):91–100.
17. Liu G et al., Trends and patterns of sexual behaviors among adolescents and adults aged 14 to 59 years, United States, *Sexually Transmitted Diseases*, 2015, 42(1):20–26.
18. Centers for Disease Control and Prevention (CDC), About teen pregnancy, 2016, <http://www.cdc.gov/teenpregnancy/about/>.
19. CDC, National Center for Health Statistics, Key statistics from the National Survey of Family Growth—N listing, 2015, http://www.cdc.gov/nchs/nsfg/key_statistics/n.htm.
20. Copen CE, Chandra A and Febo-Vazquez I, Sexual behavior, sexual attraction, and sexual orientation among adults aged 18–44 in the United States: data from the 2011–2013 National Survey of Family Growth, *National Health Statistics Reports*, 2016, Vol. 88, No. 7.
21. SOL Research, The US federal age of sexual consent, 2009, http://www.solresearch.org/report/US_Federal_Age_of_Sexual_Consent.
22. Jonason PK and Fisher TD, The power of prestige: why young men report having more sex partners than young women, *Sex Roles*, 2009, 60(3):151–159.
23. Sandfort TG et al., Long-term health correlates of timing of sexual debut: results from a national US study, *American Journal of Public Health*, 2008, 98(1):155–161.
24. Rothman KJ, Greenland S and Lash TL, *Modern Epidemiology*, Philadelphia: Lippincott Williams & Wilkins, 2008.
25. Vasilenko SA, Kreager DA and Lefkowitz ES, Gender, contraceptive attitudes, and condom use in adolescent romantic relationships: a dyadic approach, *Journal of Research on Adolescence*, 2015, 25(1):51–62.
26. Bentley CG, Galliher RV and Ferguson TJ, Associations among aspects of interpersonal power and relationship functioning in adolescent romantic couples, *Sex Roles*, 2007, 57(7–8):483–495.
27. Woolf SE and Maisto SA, Gender differences in condom use behavior? The role of power and partner-type, *Sex Roles*, 2008, 58(9):689–701.
28. Sanchez MT, Bermudez M and Buela-Casal G, Power dynamics in adolescent couple relationships and risk of sexually transmitted infections and HIV, *Current HIV Research*, 2013, 11(7):536–542.
29. Coker AL et al., Correlates and consequences of early initiation of sexual intercourse, *Journal of School Health*, 1994, 64(9):372–377.
30. Morrison-Beedy D, Xia Y and Passmore D, Sexual risk factors for partner age discordance in adolescent girls and their male partners, *Journal of Clinical Nursing*, 2013, 22(23–24):3289–3299.
31. Quirk K et al., Breaking bad: commitment uncertainty, alternative monitoring, and relationship termination in young adults, *Journal of Couple & Relationship Therapy*, 2016, 15(1):61–74.
32. Santelli JS et al., Multiple sexual partners among U.S. adolescents and young adults, *Family Planning Perspectives*, 1998, 30(6):271–275.
33. Simpson JA et al., Power and social influence in relationships, in: Mikulincer M and Shaver PR, eds., *APA Handbook of Personality and Social Psychology*, Washington, DC: American Psychological Association, 2014, pp. 393–420.
34. Vanoss Marin B et al., Older boyfriends and girlfriends increase risk of sexual initiation in young adolescents, *Journal of Adolescent Health*, 2000, 27(6):409–418.

Author contact: swmasho@vcu.edu