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Young women's perceived health and lifetime sexual experience: Results from The National Survey of Family Growth

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Abstract

Introduction—Sexuality is a component of health and wellbeing for all women, including adolescents. Yet relationships between young women's health perceptions and sexual behavior are unclear.

Aim—We examined associations between perceived health and lifetime sexual experiences among young U.S. women.

Methods—We used data from 4,413 young women ages 15–24 years in the National Survey of Family Growth, 2002–2008. Descriptive, bivariate and multivariate statistics estimated relationships between categories of perceived health and types of lifetime sexual experience.

Main outcome measures—A self-rated health Likert item and sexual history questions were administered with a computer-assisted survey instrument.

Results—Young women reported excellent (30%), very good (41%), good (23%) and fair-poor (6%) health. Sexual experiences included vaginal (64%), oral (64%) and anal (20%) sex. Negative experiences included involuntary sex (11%) and STI history (8%). In multivariate logistic regression models, lower perceived health ("good" rather than "excellent") was positively associated with vaginal (OR 1.5, CI 1.1–2.1, $p=0.02$), oral (OR 1.5, CI 1.1–2.1, $p=0.005$) and anal (OR 1.4, CI 1.0–2.0, $p=0.03$) sex. In models stratified by age, point estimates for vaginal (OR 1.8, CI 1.2–2.6, $p=0.002$) and oral (OR 1.9, CI 1.4–2.6, $p<0.001$) sex were higher among adolescents ages 15–19 years but associations were insignificant among young adults ages 20–24 years.

When controlling for negative sexual experiences, point estimates were stable in models including STI history but statistically insignificant when including involuntary sexual experience. Other characteristics associated with sexual experiences varied by type of experience and included age, race/ethnicity, employment situation, poverty level, insurance status, childhood family situation, religious service participation, cohabitation/marital experience and body mass index.

Conclusions—Further investigation is warranted to disentangle potentially negative relationships between perceived health (as well as response bias and more objective health outcomes), sociodemographic factors and diverse sexual experiences among young women in the United States.

Keywords

perceived health; self-rated general health; sexual experiences; sexual behavior; adolescents; United States

Introduction

Sexuality is recognized as an integral component of a woman's health and wellbeing [1], and indeed health is positively related to a variety of sexual practices [2–18]. Studies of women in mid- to later-life have noted that regular sexual behavior contributes to a range of psychological, emotional, and physical health outcomes [2–18]. Frequent sexual activity, a regular sexual partner, sexual satisfaction and absence of sexual dysfunction have been linked with improved chronic disease outcomes like ischemic stroke and coronary heart disease, lower rates of depression, greater health-related quality of life, and even lower mortality rates [3–5,7,9–18].

While relationships between health and wellbeing and sexual activity are well-documented for older women, a dearth of research exists for young women [8,9]. The *negative* health consequences and *riskiness* of adolescent sexual activity have long been of concern in the United States [19–22]. Public health problems such as sexually transmitted infections (STIs) and unintended pregnancy may indirectly result from sexual activity [21–25] but poor reproductive health outcomes are not intrinsic to sex itself [12,20,21]. With a problem-centered approach to the study of young women's sexual behavior, research has focused heavily on describing sexual risk rather than elucidating determinants of sexual health and the influence of general health and wellbeing [26–30].

Relationships between health and routine sexual behaviors like vaginal intercourse and outcomes occurring among older adults [12] have not been examined for adolescent or young adult women. Other common practices like oral or anal sex have been given even less attention in regards to health among younger demographics. Overall, a more complete and nuanced description of adolescent and young adult women's sexual experiences and their relationships with health and wellbeing is needed [31].

Aim

We examined associations between perceived general health and types of lifetime heterosexual sexual experiences among adolescent and young adult women in the United States, 2002 to 2008.

Methods

Study Design

We used data from two cycles of The National Survey of Family Growth (NSFG), a population-based survey in the United States which collects information on family life, marriage and divorce, pregnancy, infertility, use of contraception, and health. Household in-person interviews were conducted with women and men ages 15–44 years. N=12,571 in 2002 (cycle 6) and N=13,495 between 2006–2008 (cycle 7). African American and Hispanic

women and men were oversampled. Cycles 6 and 7 had 79% and 75% response rates, respectively [32,33].

We restricted our study population to the adolescent and young adult women ages 15–24 years from both cycles (n=5,164). We excluded pregnant women (n=269) or those who had received prenatal or postpartum care in the previous year (n=473). The primary total sample was comprised of 4,413 young women (2,155 from 2002 and 2,258 from 2006–2008). The Institutional Review Board of XXX approved this study.

Measures

An audio computer-assisted self-administered survey instrument (ACASI) was used in the NSFG interview to protect confidentiality and increase reliability of responses to sensitive questions. We focused on survey items pertaining to perceived health, health-related characteristics and sexual experiences.

Young women were asked to rank their health in general on a 5-point Likert scale, 1=excellent, 2=very good, 3=good, 4=fair, and 5=poor. Due to small numbers of women reporting “fair” and “poor” health, we combined them to create our 4-point primary independent variable for regression models. The highest level of health (“excellent”) served as the reference group.

For our primary outcomes, young women responded yes or no to a series of questions on lifetime heterosexual sexual experiences. Women were asked whether they had ever had vaginal intercourse, oral sex (given or received) or anal sex with a male partner. Women with vaginal intercourse experience were asked their age of sexual debut (coitarche) and about negative experiences including any episode of sex forced against their will (involuntary) or diagnosis of STIs (chlamydia, gonorrhea, herpes, genital warts, and/or syphilis), which we included as key covariates.

Other health-related characteristics assessed by the NSFG included previous gynecological diagnoses (ovulation problems, ovarian cysts, uterine fibroids, endometriosis, or pelvic inflammatory disease), body mass index (BMI) based upon self-reported height (inches) and weight (pounds) and diagnosis of diabetes (non-gestational or gestational). A range of demographic, social and reproductive history characteristics were also assessed, which we examined as potential covariates based upon existing literature describing factors associated with sexual experience and with perceived health [2,3,9,24,27,29,31,34,35].

Statistical Analysis

We used descriptive statistics to summarize young women’s perceived health overall, across sociodemographic groups and types of sexual experience. We examined associations between perceived health and types of sexual experience with unadjusted chi-square tests. Using multivariate logistic regression models, we tested the 4-point categorical indicator of perceived health as an independent variable in separate models with each sexual experience as an outcome.

Any sociodemographic variables that were significantly related to perceived health or sexual experiences in the bivariate analysis ($p < 0.05$) were included in regression models as covariates. We further tested models controlling for age at coitarche (for oral and anal sex) and negative sexual experiences including STI history and involuntary sex experience (for all sexual experiences). Finally, we stratified all analysis by age (adolescents versus young adults).

We employed weighted data and calculated standard errors and tests of significance using the *svy* series of commands in Stata 11.0 to account for the complex, stratified sampling survey design (Stata Corporation, College Station, TX).

Results

Description of the sample

Sociodemographic and reproductive characteristics of the sample ($n=4,413$) are presented in Table 1. The mean age of young women was 19 years, with 2,321 adolescents (15–19 years) and 2,092 young adults (20–24 years). More than half the sample reported white as their race/ethnicity (56%), while 20% reported Hispanic, 18% African American and 6% other. Many were still in secondary school (42%) but 35% had received at least some college education. Fifty-two percent were below 200% of the federal poverty level. One quarter reported being uninsured during the past 12 months. The majority of the sample had never been married (10%) or cohabitated with a partner (28%).

For lifetime heterosexual sexual experiences, women reported vaginal intercourse (64%), oral (64%) and anal (20%) sex. Among women with oral and anal sex experience, the majority had also experienced vaginal sex (89% and 97%, respectively). Potentially negative experiences among those with vaginal intercourse experience included involuntary sex (11%) and STI diagnosis (8%). The mean age of coitarche was 16 years and 36% reported early coitarche at 15 years. Nearly half of the sample reported having one current sexual partner (42%), with one quarter reporting 6 lifetime partners (24%). One-fifth of women (20%) reported having ever been pregnant.

Health characteristics and health perceptions

Over one-third of young women (34%) reported an overweight or obese BMI. Diagnosis of diabetes was reported by 1% while 13% reported a previous gynecological problem diagnosis.

Perceived general health was ranked “excellent” (30%), “very good” (41%), “good” (23%), and “fair or poor” (6%). Perceived health varied by nearly all sociodemographic and health-related characteristics (Table 1). Perceived health was rated lower among the following groups of young women: racial/ethnic minority women; women with a high school education or less (not those still in school); women below 200% of the federal poverty level; women without full insurance coverage; women without employment; women from a disrupted childhood family situation (not having two biological or adoptive parents in childhood home); women reporting no or infrequent current religious service participation; women with a history of marriage or cohabitation; women with a previous gynecological or diabetes diagnosis; and women reporting an overweight or obese BMI.

Associations between perceived health and lifetime sexual experiences

Table 2 presents unadjusted results of proportions of young women in each perceived health category by lifetime sexual experiences. Overall, perceived general health was negatively associated with different types of sexual experience: lower proportions of “excellent” health were reported among young women with vaginal (28%), oral (29%) and anal (25%) sexual experiences than women without those experiences (37%, $p<0.001$; 36%, $p=0.007$; 34%, $p<0.001$, respectively). Among intercourse-experienced women, proportions of those reporting “excellent” perceived health were also lower for women with early coitarche (21%), history of STIs (24%) and involuntary sex experience (25%) than women without those experiences (all 33%, p 's <0.001 , 0.003 and <0.001 , respectively).

In multivariate analyses of all young women (Table 3), those who perceived their health as only “good” had greater odds of vaginal (OR 1.5, CI 1.1, 2.1, $p=0.02$), oral (OR 1.5, CI 1.1, 2.0, $p=0.005$) and anal (OR 1.4, CI 1.0, 2.0, $p=0.03$) sexual experience compared to those reporting “excellent” health. Similar positive associations were also noted for “very good” (versus “excellent”) health for vaginal (OR 1.5, CI 1.1, 2.0, $p=0.008$) and anal (OR 1.3, CI 1.0, 1.7, $p=0.04$) sex while the point estimates for oral sex were similar but insignificant (OR 1.3, CI 1.0, 1.7, $p=0.10$).

In models stratified by age group, adolescents with lower perceived health (“good” versus “excellent”) had even greater odds of vaginal and oral sex (Table 3). For young adults, point estimates were generally in the same direction but associations were insignificant.

Finally, we tested relationships between perceived health and sexual experiences among all young women in models with additional controls for early age at coitarche ≤ 15 years and negative sexual experiences (Table 3). When we controlled for early age of coitarche, point estimates for oral (OR 1.3, CI 0.8, 2.1, $p=0.38$) and anal (OR 1.3, CI 0.9, 1.8, $p=0.14$) sex among young women with “good” perceived health (versus “excellent”) remained stable though associations were statistically insignificant. The greater odds of vaginal (OR 1.4, CI 1.0, 2.0, $p=0.03$), oral (OR 1.5, CI 1.1, 2.0, $p=0.008$) and anal (OR 1.4, CI 1.0, 1.9, $p=0.04$) sex (with “good” versus “excellent” health) were stable when we controlled for STI history. Point estimates for vaginal (OR 1.2, CI 0.8, 2.0, $p=0.41$), oral (OR 1.2, CI 0.8, 1.8, $p=0.38$) and anal (OR 1.3, CI 0.9, 1.8, $p=0.23$) sex were also stable when we controlled for involuntary sex experience but statistically insignificant.

Other characteristics associated with sexual experiences varied by type of experience (Table 3). Young women of black race/ethnicity had greater odds of vaginal sex compared to non-Blacks while White women had greater odds of oral and anal sex compared to non-Whites. Hispanic women had reduced odds of oral sex and those of Asian/other race/ethnicity had reduced odds of anal sex compared to their counterparts. Age was positively associated with all sexual experiences. Being in school (versus employed) and having an intact (versus disrupted) childhood family situation with two biological or adoptive parents was negatively associated with all sexual experiences. Women with an obese BMI had reduced odds of all sexual experiences compared to normal weight women. Finally, young women with infrequent religious service participation (less than weekly or never) and with cohabitation or marriage experience had greater odds of all sexual experiences than their counterparts.

Discussion

The prevalence of lifetime heterosexual sexual experiences reported by these young women are consistent with other reports on sexual behavior [2,3,23,24]. Population-based studies of women in the United States have noted similar prevalence rates of vaginal, oral and anal sexual behavior as well as differentials in behaviors according to race/ethnicity, socioeconomic characteristics and cultural factors [2,3,23,24]. Our study builds upon this work to provide insight into the link between diverse sexual experiences and *perceived* health among *young* U.S. women.

We hypothesized that routine sexual experiences would be positively associated with perceived health. A recent population-based study of sexual behaviors by Herbenick and colleagues noted findings in support of this hypothesis [3]. Using cross-sectional data from 2,523 U.S. women aged 18–92 years in the National Survey of Sexual Health and Behavior, the authors found vaginal intercourse in the past 90 days was *positively* associated with “good to excellent” health (OR 28.6, CI 3.7–219.1) among the 18–25 year-olds. Oral sex or masturbation, however, were not associated with “good to excellent” health.

The positive effects of vaginal sex on health and wellbeing among older women have been well-documented [12–18]. A comprehensive review of the health benefits of different sexual behaviors by Brody noted positive physiological and psychological health outcomes including better heart rate variability, lower blood pressure, improved musculoskeletal functioning, greater mental health satisfaction, less depressive symptoms, higher relationship quality and longer life expectancy associated with penile-vaginal intercourse [12]. Similar to Herbenick *et al's* findings [3], other sexual activities including masturbation, anal and oral sex appeared to have no or inverse associations with most health indices [12].

Among young women in our study, vaginal, oral and anal sex were associated with *lower* levels of perceived health (“good” rather than “excellent”) among the total sample and the adolescent sub-group. Point estimates were in the same direction (but largely insignificant) for young adult women and among all women when we controlled for early age of coitarche and negative sexual experiences. The latter statistically insignificant results may be at least partially explained by the high collinearity of the vaginal sex, other sexual behaviors, age at coitarche and negative sexual experience variables. Regardless, the true effects of perceived health on these highly inter-correlated sexual experiences are not apparent from these data. The potential confounding effects of sexual violence and STIs are particularly concerning given their correlation with a wide range of physical, mental and social health sequelae that likely impact a woman’s own health perceptions [25,30].

Alternatively, our findings may provide insights into age differentials in associations between perceived health and specific types of sexual behaviors. Sexuality and health has been understudied in younger populations. Our findings may also reflect age differences in reports of sexual behavior and health. Research on adolescents has shown that while self-reported mental and physical health both contribute significantly to perceived health, mental health appears to make a greater contribution [6]. The NSFG health question may measure a vague health construct (perhaps more consistent with wellbeing or quality of life) than the health indicators documented by others [6,12]. Moreover, responses to this widely-used single survey item vary across different socioeconomic groups and geographic contexts [34,35]. It is unclear whether our indicator is a reliable measure of health among young women in our sample.

We did examine ordinal categories of perceived health in the context of sexual behavior and were able to distinguish women with perceptions of “excellent” health from those with only “good” or “very good” perceived health. It appears that there are coexisting characteristics of “excellent” perceived health that also negatively influence sexual behavior [34]. Young women with “excellent” perceived health were more likely to have higher educational attainment, a higher income, an intact childhood family situation, a highly educated mother, and to participate in religious services frequently. These characteristics, especially religious involvement [36], have been associated with a decreased likelihood of sexual activity in studies of young women [2,3,24,36]. We statistically controlled for age, religion and other factors but likely failed to capture the complexity of relationships between women’s perceived health, sexual experiences and socioeconomic and cultural characteristics in our analysis [29].

Moreover, differentials by race/ethnicity in both perceived health and sexual experiences were apparent in our data. Hispanic and Black women reported lower health and different sexual experiences compared to White women. While others have noted similar variations in sexual debut, sexual behaviors and also perceived health across different racial/ethnic groups [2,3,9,24,27,29,31,34,35], the potential confounding effects of race/ethnicity on associations between perceived health and sexual behavior have not been tested. Unfortunately, our data did not permit stratifying analyses by racial/ethnic groups due to

insufficient cell sizes across sampling strata. Further examination of discrepancies in associations between perceived health and sexual experiences across racial/ethnic groups, as well as the influence of negative sexual encounters and age at coitarche on these associations, are warranted.

More broadly, sociocultural constructions around sexuality for young women in the U.S., and particularly for racial/ethnic minority and religious women, may be evident in our findings [29]. Health and social scientists have suggested that framing adolescent sexuality as problematic has contributed to a lack of understanding of sexual behavior and may deter adolescents from acting in safe or health-conscious ways, facilitating adverse reproductive health outcomes [19–21,26–28,37]. Poorer perceptions of health may at least partially result from these negative influences on sexuality, a hypothesis which requires further investigation. Important areas for future research involve investigating how sociocultural factors interact with other documented determinants of sexual behavior including evolutionary, biological, genetic, physiological and medical mechanisms to contribute to young women's health and wellbeing [12,38].

Additional limitations of our study include its cross-sectional nature which prevented testing of directions of associations or bidirectional causality between perceived health and sexual experiences [12]. Measures of sexual experiences were limited to lifetime experiences and the pathways by which having ever experienced a (potentially single) sexual act relate to perceived health are unclear. Our results likely reflect response bias around reporting sexual experiences which vary across racial/ethnic and cultural groups of women and which may concurrently influence self-reported health [36,39,40]. Some research has suggested that social desirability responding might itself be associated with predictors of poorer physical and psychological health outcomes [39,40]. Others have shown that favorable health reporting may be more common among “risk-taking” or extroverted young women who are also more likely to engage in diverse sexual behaviors [41,42]. Selection bias around receipt of health care is of concern given its potential impact on sexual practices but also health [43]. Finally, the NSFG does not measure conditions common to young people like depression or eating disorders which are highly correlated with wellbeing and health behaviors and which likely confounded our results.

Conclusion

Our findings provide preliminary insights into associations between young women's health perceptions and behaviors around sexuality, to serve as a foundation for professionals who provide sexual and reproductive health services and programs. Additional research is needed to provide multidimensional measures of perceived health and wellbeing, comprehensive assessment of sexual experiences and more detailed examinations of sociocultural influences like race/ethnicity and religiosity. Studies designed to understand how young women perceive their own sexuality as part of their wellbeing and how perceptions of health relate to actual health outcomes are warranted. Longitudinal designs may permit examination of the influence of perceived health on sexual activity but also the potential impact of sexual behavior on health and wellbeing for young women.

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Table 1

Proportions of young women in each perceived health category, by sociodemographic and health-related characteristics

Sociodemographic characteristics of adolescent and young adult women (N=4,413)	Perceived General Health				p-value
	Excellent (1) N=1,312	Very good (2) N=1,830	Good (3) N=1,025	Fair-Poor (4) N=246	
Age group					0.51
Adolescents (15–19 years; n=2,321)	33	40	21	7	
Younger adolescents (15–17 years; n=1,416)	34	39	21	6	
Older adolescents (18–19 years; n=910)	31	41	21	7	
Young adults (20–24 years; n=2,092)	31	41	22	5	
Race/ethnicity					<0.001
Hispanic (n=894)	27	37	27	9	
White (n=2476)	33	43	20	4	
Black (n=784)	32	36	23	10	
Other (n=264)	37	40	19	5	
Education					<0.001
< High school (n=389)	27	29	30	14	
High school (n=608)	28	37	29	6	
Any college (n=1,559)	35	45	17	3	
Still in high school (n=1,862)	32	40	22	6	
Residence					0.70
Urban (n=1,907)	32	41	20	6	
Suburban (n=1,693)	33	41	21	5	
Rural (n=818)	30	41	23	6	
Birthplace					0.38
U.S. (n=3,938)	32	41	21	6	
Outside the U.S. (n=487)	33	36	25	6	
Federal poverty level					<0.001
200% (n=2,135)	34	43	19	4	

	Perceived General Health					
Sociodemographic characteristics of adolescent and young adult women (N=4,413)	Excellent (1) N=1,312	Very good (2) N=1,830	Good (3) N=1,025	Fair-Poor (4) N=246	p- value	
< 200% (n=2,283)	30	38	25	7		
Employment situation					<0.001	
Employed (n=2,414)	32	43	20	4		
Unemployed (n=232)	30	39	36	4		
In school (n=1,005)	35	39	20	6		
Other (n=767)	31	34	23	12		
Insurance status last year					<0.001	
Full coverage for entire year (n=3,275)	35	41	19	5		
Uninsured anytime (n=1,089)	23	40	29	8		
Childhood family situation					<0.001	
Intact (n=2,472)	35	42	18	4		
Disrupted (n=1,946)	27	38	27	8		
Mother's education level					<0.001	
< High school (n=774)	26	33	29	12		
High school diploma or GED (n=1,349)	30	40	24	6		
> High school (n=2,272)	35	43	18	4		
Attend religious services now					<0.001	
Weekly or more often (n=1,365)	37	38	20	5		
Less than weekly (n=1,955)	31	43	21	5		
Never (n=1,098)	26	39	26	9		
Body mass index					<0.001	
Underweight (BMI <18.5) (n=222)	35	40	18	8		
Normal Weight (BMI 18.5–24.4) (n=2,614)	38	41	17	4		
Overweight (BMI 24.5–29.5) (n=822)	25	42	25	7		
Obese (BMI >29.5) (n=655)	15	38	37	11		

	Perceived General Health					
Sociodemographic characteristics of adolescent and young adult women (N=4,413)	Excellent (1) N=1,312	Very good (2) N=1,830	Good (3) N=1,025	Fair-Poor (4) N=246	p- value	
Ever diagnosed with Gynecological problems (n=685)	22	40	30	8	<0.001	
No gynecological diagnosis (n=3,728)	34	41	20	5		
Ever diagnoses with diabetes (n=59)	26	28	29	17	0.03	
No diabetes diagnosis (n=4354)	32	41	22	5		
Ever cohabitated or been married	27	39	27	7	<0.001	
Never cohabitated or been married	34	41	20	5		

Results are weighted percentages of perceived health by sociodemographic groups. P-values based on chi-square.

Table 2
Proportions of young women in each perceived health category by sexual experience

All Young Women N=4,413		Perceived General Health				
Sexual experiences		Excellent -1 N=1,312	Very good -2 N=1,830	Good -3 N=1,025	Fair-Poor -4 N=246	p-value
Heterosexual vaginal intercourse						
Yes (n=2,816)		28	42	23	6	<0.001
No (n=1,597)		37	38	35	5	
Heterosexual oral sex						
Yes (n=2,813)		29	42	23	6	0.007
No (n=1,589)		36	39	19	6	
Anal sex						
Yes (n=866)		25	43	27	5	<0.001
No (n=3,522)		34	40	20	6	
Other Sexual and Reproductive Characteristics *						
Age at coitarche						
15 years or younger (n=996)		21	40	29	10	<0.001
16 or older years (n=1,776)		33	43	20	4	
Number of sexual partners lifetime						
1–5 partners (n=2,103)		30	42	23	6	0.06
6 or more partners (n=654)		24	41	26	9	
Sexually transmitted infection history						
Yes (n=346)		25	36	31	9	0.003
No (n=4,060)		33	41	21	5	
Involuntary sex						
Yes (n=484)		24	36	30	10	<0.001
No (n=2,504)		33	42	21	5	

Results are presented as weighted percentages of each perceived health category by heterosexual sexual experience. P-value based on unadjusted chi-square analyses.

* Assessed only among women with vaginal sexual intercourse experience; 44 women did not respond to age of coitarche.

Table 3

Multivariate regression results for associations between perceived health and types of lifetime heterosexual sexual experiences

Models of lifetime sexual experiences among all young women			
	Vaginal Sex (n=2,816) OR (95% CI) p	Oral Sex (n=2,813) OR (95% CI) p	Anal Sex (n=866) OR (95% CI) p
Perceived health of all young women (15–24 years)(N=4,413)			
Excellent	1	1	1
Very good	1.5 (1.1,2.0) 0.008	1.3 (1.0,1.7) 0.10	1.3 (1.0,1.7) 0.04
Good	1.5 (1.1,2.1) 0.02	1.5 (1.1,2.1) 0.005	1.4(1.0,2.0) 0.03
Fair or poor	1.6 (0.9,2.9) 0.28	1.3(0.7,2.2) 0.38	1.0 (0.6,1.6) 0.98
Sociodemographic characteristics *			
Age group			
Younger adolescents ages 15–17 years	1	1	1
Older adolescents ages 18–19 years	2.5 (1.8,3.6) <0.001	2.3(1.7,3.1) <0.001	1.7 (1.1,2.7) 0.01
Young adults ages 20–24 years	3.5 (2.2,5.5) <0.001	2.8(1.9,4.1) <0.001	2.7(1.7,4.6) <0.001
Education level			
<High school	1	1	1
High school diploma/GED	1.3 (0.7,2.4)0.48	1.3 (0.8,2.1) 0.30	0.6 (0.4,0.9) 0.02
Any college	1.0 (0.6,2.0) 0.87	1.5 (0.9,2.5) 0.16	0.8 (0.5,1.2) 0.25
Still in high school	0.8 (0.4,1.4) 0.38	1.2 (0.7,2.0) 0.55	0.8 (0.5,1.2) 0.27
Race/ethnicity^a			
Hispanic(vs. non-Hispanic)	0.8 (0.5,1.1) 0.14	0.6 (0.4,0.8) 0.003	0.8 (0.6,1.1) 0.20
White(vs. non-White)	0.9 (0.7,1.1) 0.27	1.5 (1.1,1.9) 0.005	1.5 (1.1,2.0) 0.002
Black(vs. non-Black)	1.7 (1.2,2.4) 0.003	1.1 (0.8,1.5) 0.58	0.8 (0.5,1.1) 0.10
Other	0.9 (0.5,1.7) 0.78	0.6 (0.4,1.1) 0.10	0.6 (0.4,0.9) 0.02
Employment situation			
Employed	1	1	1
Unemployed	1.0 (0.5,1.7) 0.86	0.7 (0.4,1.1) 0.12	1.4 (0.8,2.5) 0.22
In school	0.6(0.4,0.7) <0.001	0.6 (0.5,0.8) <0.001	0.6 (0.4,0.9) 0.006
Other	0.8 (0.6,1.1) 0.14	0.6(0.5,0.8) 0.002	0.9(0.7,1.3) 0.57
Below 200% of federal poverty level	0.9 (0.7,1.1) 0.26	0.6 (0.5,0.7) <0.001	0.9 (0.7,1.1) 0.26
Uninsured anytime last year	1.3 (0.9,1.8) 0.13	1.6 (1.1,2.1) 0.005	0.9 (0.7,1.2) 0.51
Intact childhood family	0.6 (0.5,0.8) <0.001	0.7 (0.6,0.9) 0.003	0.7 (0.6,0.9) 0.006
Mother's education level			
<High school	1	1	1
High school diploma/GED	1.1 (0.8,1.8) 0.49	1.3 (0.8,2.0) 0.26	1.0 (0.7,1.4) 0.90

Models of lifetime sexual experiences among all young women			
	Vaginal Sex (n=2,816) OR (95% CI) p	Oral Sex (n=2,813) OR (95% CI) p	Anal Sex (n=866) OR (95% CI) p
Any college	1.0 (0.7,1.6) 0.89	1.3 (0.9,1.9) 0.20	1.9 (1.3,2.7) 0.001
Religious service attendance			
Weekly or more often	1	1	1
Less than weekly	3.0 (2.0,4.5) <0.001	3.0 (2.0,4.4) <0.001	1.9 (1.3,2.6) <0.001
Never	3.4 (2.3,5.2) <0.001	3.1 (2.1,4.6) <0.001	1.9 (1.3,2.7) 0.001
Body mass index (BMI)			
Normal BMI 18.5–24.4	1	1	1
Underweight BMI <18.5	0.8 (0.5,1.3) 0.40	0.7 (0.4,1.1) 0.08	0.7 (0.4,1.3) 0.25
Overweight BMI 24.5–29.5	1.0 (0.7,1.3) 0.74	0.9 (0.7,1.2) 0.51	1.0 (0.8,1.4) 0.80
Obese BMI >29.5	0.7 (0.5,0.9) 0.02	0.7 (0.5,0.9) 0.02	1.0 (0.7,1.4) 0.88
Diabetes diagnosis	0.5 (0.2,1.1) 0.11	0.8 (0.4,1.5) 0.39	1.0 (0.4,2.4) 0.99
Gynecological problem diagnosis	1.0 (0.7,1.6) 0.94	1.2 (0.8,1.8) 0.44	1.0 (0.7,1.3) 0.90
Ever cohabitated/married	22.2 (10.9,45.1) <0.001	7.2 (4.8,11.0) <0.001	3.9 (3.0,5.3) <0.001
Models stratified by age group ^b			
Perceived Health of Adolescents (15–19 yrs) (N=2,321)			
Excellent	1	1	1
Very good	1.6 (1.2,2.3) 0.004	1.3 (1.0,1.8) 0.04	1.4 (0.9,2.4) 0.15
Good	1.8 (1.2,2.6) 0.002	1.9 (1.4,2.6) <0.001	1.4 (0.8,2.5) 0.23
Fair or poor	2.1 (1.0,4.5) 0.05	2.1 (1.0,4.4) 0.05	1.5 (0.7,3.2) 0.26
Perceived Health of Young Adults (15–19 yrs) (N=2,092)			
Excellent	1	1	1
Very good	1.2 (0.7,2.0) 0.52	1.2 (0.7,2.1) 0.55	1.2 (0.9,1.8) 0.22
Good	1.1 (0.6,2.0) 0.87	1.2 (0.6,2.0) 0.63	1.4 (0.9,2.1) 0.09
Fair or poor	0.8 (0.4,1.8) 0.60	0.6 (0.3,1.1) 0.14	0.6 (0.4,1.1) 0.08
Models further controlling for age at coitarche and negative sexual experiences (among all young women) ^c			
Early age at coitarche (< 15 years)	X	2.1 (1.4,3.3) 0.001	1.6 (1.2,2.1) 0.001
Perceived health of all young women, controlling for early age at coitarche (N=4,413)	X		
Excellent		1	1
Very good		0.8 (0.5,1.3) 0.47	1.2 (0.9,1.6) 0.26
Good		1.3 (0.8,2.1) 0.38	1.3 (0.9, 1.8) 0.14
Fair or poor		0.7 (0.4,1.4) 0.35	0.9 (0.5,1.4) 0.56
STI history	22.2 (10.9,45.5) <0.001	6.0 (3.2,11.4) <0.001	2.7 (1.9,4.0) <0.001

Models of lifetime sexual experiences among all young women			
	Vaginal Sex (n=2,816) OR (95% CI) p	Oral Sex (n=2,813) OR (95% CI) p	Anal Sex (n=866) OR (95% CI) p
Perceived health of all young women, controlling for STI history (N=4,413)			
Excellent	1	1	1
Very good	1.5 (1.1,2.0) 0.007	1.3 (1.0,1.7) 0.10	1.3 (1.0,1.7) 0.04
Good	1.4 (1.0,2.0) 0.03	1.5 (1.1,2.0) 0.008	1.4 (1.0,1.9) 0.04
Fair or poor	1.4 (0.8,2.6) 0.28	1.2 (0.7,2.1) 0.56	1.0 (0.6,1.6) 0.85
Involuntary sex experience	7.9 (3.4,18.7)<0.001	7.5 (3.6,15.7) <0.001	2.6 (1.9,3.8)<0.001
Perceived health of all young women, controlling for involuntary sex (N=4,413)			
Excellent	1	1	1
Very good	1.4 (1.0,2.0) 0.06	1.2 (0.8,1.8) 0.39	1.2 (0.9,1.7) 0.14
Good	1.2 (0.8,2.0) 0.41	1.2 (0.8,1.8) 0.38	1.3 (0.9,1.8) 0.23
Fair or poor	0.8 (0.4,1.6) 0.52	0.6 (0.4,1.1) 0.12	0.9 (0.5,1.6) 0.65

Results are adjusted odds ratios (OR) with 95% confidence intervals (CI) and p-values from full logistic regression models with types of sexual experience as outcomes.

^aRacial/ethnic categories entered separately as dichotomous variables into models. STI= sexually transmitted infection. Age of intercourse, involuntary sex and STI history assessed only among those who had reported vaginal intercourse experience. (X) indicates unable to include in model due to collinearity.

* Point estimates of sociodemographic variables shown from model of all young women but stable in models stratified by age group and controlling for additional sexual experience variables.

^{bc} Models stratified by age group and those controlling for age at coitarche and negative sexual experiences also included all sociodemographic variables with similar point estimates as those reported for all young women.