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Sexual Coercion and Sexual Violence at First Intercourse Associated with Sexually Transmitted Infections

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Abstract

Background—Violence against women has been associated with subsequent risky sexual behaviors and sexually transmitted infections. We explored whether sexual coercion or violence at first intercourse was associated with self-reported sexually transmitted infections (STIs).

Methods—Using nationally representative data from the 2006–2010 National Survey of Family Growth, we analyzed female respondents ages 18–44 (n=9,466) who answered questions on coercion at first intercourse (wantedness, voluntariness and types of force used) and STIs using logistic regression analyses. We explored degrees of coercion, which we label as neither, sexual coercion (unwanted or nonphysical force), or sexual violence (involuntary or physical force).

Results—Eighteen percent of US women reported sexual coercion and 8.4% experienced sexual violence at first intercourse. Compared with women who experienced neither, the odds of reporting a STI was significantly greater for women who experienced sexual coercion (OR: 1.27, 95% CI: 1.01–1.60), after controlling for all variables. The association between sexual violence at first intercourse and STIs (OR: 1.20, 95% CI: 0.91–1.57) appeared to be attenuated by subsequent sexual violence.

Conclusions—Understanding that women who reported a variety of coercive sexual experiences are more likely to have contracted an STI may indicate a need to focus on the broader continuum of sexual violence to fully understand the impact of even subtle forms of violence on women's health. In addition, focusing on subsequent sexual behaviors and other negative consequences remains important in order to improve the sexual health of women who have experienced coercive sexual intercourse.

Keywords

violence; sexually transmitted infections; women; coercion; sexual assault

INTRODUCTION

Sexually transmitted infections (STIs) are a significant public health problem. Health consequences of untreated STIs include pelvic inflammatory disease, which leads to chronic pelvic pain, ectopic pregnancies, and infertility.[1] STIs can also result in negative pregnancy outcomes such as preterm delivery and infant mortality.[2] STIs are prevalent in the U.S. with approximately 19 million new cases in 2010, half occurring among adolescents.[3–4]

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Intimate partner violence (IPV) and sexual violence consistently worsen women's reproductive health,[5] and more specifically the risk of STIs. Women who have experienced IPV were more likely to contract an STI[6–7]perhaps due to a lack of control over sexual intercourse, supported by narratives of abused women describing decreased ability to negotiate consistent condom use.[8–9] Women ever experiencing physical or sexual abuse were more likely to have an STI.[6–7] Interestingly, emotional abuse without concurrent physical or sexual partner violence was also significantly associated with ever having had an STI.[10] These findings suggest that fear of partner behaviors regardless of the types of abuse does affect loss of control in sexual decision making. Abusive or controlling sexual behaviors early in a woman's life may have a greatest effect on her risk of an STI. Abusive partners' sexual behaviors also increase a woman's risk of an STI.[11] Men who perpetrated IPV were twice as likely to have had an STI diagnosis in the six months before interview.[12] Another study identified a similar association with STIs, as well an independent association of IPV perpetration and coercive nonuse of condoms.[13]

Sexual violence is also associated with negative reproductive health outcomes among adolescent girls. Studies generally have not specifically examined sexual violence at first intercourse. However, a few studies have identified an association between forced sex during childhood or adolescents and STI history.[14–15] Women who experienced forced sex at less than 10 years of age were more likely to have a current STI, while those who experienced forced sex at any age were more likely to report that they had ever had an STI.[15] Female adolescents with a history of forced sex were more likely to have multiple sexual partners in the three months prior to interview and were less likely to have used a condom at last sex, implying a continuing effect of forced sex on sexual behavior; no information on STI history was available.[16] Researchers have also examined sexual abuse during adolescence as a predictor of adult negative health outcomes, hypothesizing that these early experiences may affect later sexual behaviors.[5, 17] Women who experienced child/adolescent sexual abuse were more likely to engage in risky sexual behaviors as adults, including having multiple sexual partners and engaging in unprotected sex.[18]

Given the associations between sexual violence and sexual behaviors, we hypothesized that women who experience sexual violence or sexual coercion may be at increased risk of having an STI. We examine the relationship between sexual coercion or sexual violence at first intercourse and a lifetime history of STIs in a large, nationally representative sample. Few studies have explored sexual coercion as distinct from sexual violence in relation to sexually transmitted infections.[19–20] Further, we explored the degree of violence reported, based on reports of involuntary first intercourse and specific tactics used, to understand the impact of nonphysical forms of sexual coercion that may not be regularly captured in other studies. Understanding the health trajectories of women who experience sexual coercion may inform STD prevention efforts.

MATERIALS AND METHODS

Data from the National Survey of Family Growth (NSFG), collected by the National Center for Health Statistics, were used in this study. The NSFG is a nationally representative survey of persons 15–44 years of age. Interviews are conducted by trained interviewers. In addition, audio computer-assisted self-interviews (ACASI), where respondents listen to questions on headphones and then key answers directly into the computer, were used for collecting more sensitive questions on the survey to gather more honest responses to such questions. Data collection took place from 2006–2010. Interviews were voluntary, confidential, and took an average of 80 minutes to complete. The response rate for women was 78%. The University of Kentucky Institutional Review Board approved this study (#09-0286-X6B).

Measures

The exposure was sexual coercion or sexual violence at first intercourse. During the ACASI portion of the interview, respondents were asked two initial questions. 1) "Which would you say comes closest to describing how much you wanted that first vaginal intercourse to happen?" with response options of: wanted (I really wanted it to happen at the time), mixed feelings (part of me wanted it to happen and part of me didn't), or unwanted (I really didn't want it to happen at the time). 2) "Would you say then that this first vaginal intercourse was voluntary or not voluntary, that is, did you choose to have sex of your own free will or not?" Women who said anything other than first intercourse was wanted and voluntary were then asked a series of seven yes/no questions, which we classified as nonphysical or physical: Nonphysical: a) Pressured into it by his words or actions, but without threats of harm? b) Did what he said because he was bigger or older than you? c) Given alcohol or drugs? d) Told that the relationship would end? e) Threatened with physical harm or injury? Physical: a) Physically hurt or injured? b) Physically held down? Women were coded as experiencing physical force if they reported one of those tactics, regardless of what other tactics may have been used.

In this analysis, a three-category variable indicating the degree of sexual violence was created based on responses to these questions. Women were coded as experiencing sexual violence if they indicated any physical force or an involuntary experience. Women were coded as experiencing sexual coercion if they reported that the first experience was unwanted or nonphysical force was used. Finally, women were coded as experiencing neither coercion nor violence if they indicated that no force was used and that first sex was either wanted or they had mixed feelings.

Self-reported STIs were measured with the following items from the ACASI portion: 1) In the last 12 months, have you been treated or received medication from a doctor or other medical care provider for a sexually transmitted disease like gonorrhea, Chlamydia, herpes, or syphilis? 2) In the last 12 months, have you been told by a doctor or other medical care provider that you had a) gonorrhea? b) Chlamydia? 3) At any time in your life, have you ever been told by a doctor or other medical care provider that you had a) genital herpes? b) genital warts or human papillomavirus? c) syphilis? Respondents who said yes to any of these items were classified as ever having had an STI.

Control variables included age at interview, race/ethnicity, completed education at interview, marital status at interview, and duration of time between first sexual intercourse and interview. Variables associated with respondent's early childhood that might be associated with sexual coercion were also included as control variables (respondent's mother's education and age at first birth, whether the respondent's parents were married at her birth and whether the respondent lived on her own before age 18). We also examined age at first sexual intercourse and a measure of forced sexual intercourse subsequent to the first intercourse (Have you ever been forced by a male to have vaginal intercourse against your will). Subsequent forced sex is our only potential measure of adult experiences with IPV, which are associated with STIs. Sexual risk behaviors included lifetime number of sexual partners and condom use at last sexual intercourse.

Study sample

Interviews were conducted with 12,279 women 15–44 years of age. Because the first sexual experience items were not asked of those ages 15–17, these 1,304 women were excluded. Further women who had never had sexual intercourse (n=792) were excluded as well as those missing answers to any relevant question: sexual coercion (n=118); STIs (n=29); or

covariates (n=570). The final sample consists of 9,466 women who responded to all questions used in these analyses, or 78.3% of the sample.

Statistical analysis

Chi-square tests were used to evaluate the bivariate associations between: 1) coercive first intercourse and having a STI; 2) coercive first intercourse and all covariates (results not shown); and 3) having an STI and all covariates. Multiple logistic regression was used to estimate adjusted odds ratios and 95% confidence intervals for the association between coercive first intercourse and having an STI, controlling for all significant covariates. We estimated three multiple logistic regression models adding covariates sequentially in the following order: 1) demographic factors and childhood characteristics; 2) other sexual violence; and 3) sexual risk behaviors. SAS 9.3 software SURVEY commands were used for all analyses, to adjust for the complex survey design and create nationally representative estimates.

RESULTS

Table 1 shows the pattern of responses to the series of questions about forced first intercourse. The majority (73.4%) of women 18–44 years of age were categorized as experiencing no violence or coercion at first intercourse; 51.4% of these women reported that first sex was wanted while 48.6% reported mixed feelings about the sexual experience but no force. Rates of reporting an STI were comparable for these two groups (14.1% and 12.8%, respectively; Table 1).

Overall, 18.1% of women were categorized as experiencing sexual coercion at first intercourse; of these women two-thirds reported mixed feelings about first sex and nonphysical coercion (66.9%). The remaining woman in this category stated that first sex was unwanted and either experienced no force (16.3%) or nonphysical force (16.8%). All women in this category of sexual coercion reported that first intercourse was voluntary. Among these women, we observed that those who experience nonphysical coercive tactics appear to be more likely to have had an STI.

Finally, 8.4% of women were categorized as experiencing sexual violence at first intercourse. These women primarily reported that first sex was unwanted, involuntary and some form of physical force was used (36.8%). The next largest component of this category were the women who reported that first sex was unwanted, involuntary and some form of nonphysical force was used (24.5%). The remaining women were fairly evenly divided among the other combinations of responses. We note that women who reported first intercourse as unwanted and involuntary, with either no force or physical force, appear less likely to report having had an STI.

Approximately 15% of respondents reported that they had an STI; the vast majority (84%) of these were incurable STIs (20% had genital herpes; 54% had genital warts or human papillomavirus; 10% reported both). STIs were significantly associated with respondent's race/ethnicity, educational attainment, marital status, age at first intercourse, and respondent's mother's education (Table 2). Other key significant variables included subsequent forced sexual intercourse and lifetime number of sexual partners.

Coercion at first intercourse was significantly associated with STIs in unadjusted analyses: the unadjusted odds of an STI was 1.58 for women who experienced sexual coercion and 1.45 for women who experienced sexual violence (Table 3).

When controlling for demographic factors and childhood covariates (Model #1), the association between sexual coercion and sexual violence at first intercourse and STIs remained significant. However, when subsequent sexual violence was added to the model (Model #2), the association between sexual violence was no longer statistically significant (OR: 1.26, 95% CI: 0.96–1.66); the association between sexual coercion and STIs remained (OR: 1.45, 95% CI: 1.17–1.81). Finally, when sexual risk behaviors were added to the model (Model #3), the association between sexual coercion and STIs remained significant (OR: 1.27, 95% CI: 1.01–1.60).

DISCUSSION

The study's results support our hypothesis that experiencing sexual coercion and violence at first intercourse was associated with contracting an STI. The association between sexual violence at first intercourse and STIs remained significant until subsequent sexual violence was included in the regression models. In contrast, the association between sexual coercion and STIs appears to be independent of subsequent sexual violence, age at first intercourse, number of sexual partners and condom use, though the relationship was attenuated. As described above, prior research strongly supports the theory that these variables may be on the pathway between coercive first intercourse and STI history.

Two things are important to note about our sexual violence variable. First, given our explicit analyses of nonphysical sexual coercion, we have included threats of physical violence as a nonphysical tactic under the category of sexual coercion, rather than sexual violence. We note that of the 283 women who reported threats, only 29 did not report some form of physical force. Therefore, this is unlikely to have a significant effect on the analyses, but is consistent with our intentional examination of nonphysical coercion. Second, we classified the degrees of sexual coercion based on theoretical considerations of the experiences, without examining the prevalence of STIs in each group.

While we created the classification of degrees of coercion based on theory rather than empirical associations with STIs, we did not test whether the categories of sexual coercion and sexual violence represent two distinct risk sets. While the odds ratios have a similar magnitude, it is interesting to note that the two groups appear to be affected by certain variables differently. The possibility exists that it is a spurious finding, but it may also be that the pathways by which negative health consequences occur for women who experience sexual coercion, primarily women who experienced nonphysical coercion, compared with sexual violence are different and that different interventions may be required for women who have experienced each type of violence.

This study builds on existing literature in two ways. First, this study examines the association between an early experience of violence and having an STI in a large, nationally representative sample of women ages 18–44. Consistent with previous research, the present study found that women who reported some form of violence were more likely to have had an STI. Early sexual coercion or sexual violence may be directly related to negative health outcomes as adults, but is also indirectly related by increasing the risk of being victimized as an adult, which has direct negative health consequences.[21–22] Understanding how these pathways operate may help us to tailor interventions to women who may not currently receive services, to help prevent subsequent victimizations and negative health consequences.

Second, this study used a more comprehensive measure of coercion at first intercourse. Understanding the ways that nonphysical force can have an impact on women at an early age is important in STI prevention efforts and interventions. Early nonphysical sexual

coercion may lead to a perceived inability to control ones' own sexuality. While 4.4% reported that a physical type of force was used, approximately 18.1% reported a nonphysical coercive type of force was used during first intercourse. In addition, a list of specific coercive tactics was asked of the remaining women; it is possible that other physical and/or nonphysical tactics may have been used, particularly for those who reported unwanted first intercourse. We have previously used this construct of coerciveness at first intercourse to examine unintended pregnancies.[23] We believe this construct has advantages over other measurement of sexual violence. Characterizing first intercourse as violent based on voluntariness alone may be inadequate based on previous research; it has been previously recommended to include additional dimensions such as wantedness.[24] This measure of sexual violence also addresses apparently inconsistent responses by acknowledging the complexity of sexual relationships and allowing for these response patterns. Unacknowledged rape is a phenomenon where women respond in contradictory or ambiguous ways, for example, women who have been raped, from a legal standpoint, but don't label their experience as rape.[25] For example, one possible scenario may be that the women who said that first intercourse was unwanted but voluntary would have chosen to delay sex (unwanted) but were pressured by a male partner; by "giving in," they then say they "choose to have sex of your own free will," part of the prompt for the voluntary question.

Given the observed health effects of sexual coercion, increased focus on what appears to be a more common phenomenon may help to prevent the negative health consequences. Next steps would include trying to understand if women who reported sexual coercion received any sort of intervention or services after the incident, or if there was anything that may have been helpful to them at that time. Many of these women may not self-identify as victims, and therefore may not come to the attention of professionals providing services. We observed that those women who reported first intercourse as unwanted, involuntary, and with physical force appeared less likely to have an STI (14.7%). These women may have been more likely to recognize their experience as rape and receive services. The pathway between sexual coercion and STI history needs to be better understood to increase the effectiveness of interventions.

This study has at least three limitations. Although coerced first intercourse is typically thought to be a salient event, it is possible that women's recollections may differ depending on what occurred with the relationship afterwards. It is possible for this bias to work in either direction (the relationship worked out and improved or the relationship ended), and we are unable to account for this recall bias, outside of controlling for the amount of time that passed since first intercourse. Self-reports of STIs can also be affected by reporting errors such as recall or social desirability.[26] In this study, STI data was assessed using ACASI in place of interviewers, which may help to reduce social desirability bias. Studies have noted different findings when examining current STI status, as opposed to lifetime STI history, in relation to violence exposures.[15] Potential confounders, such as adult IPV including emotional and physical abuse, were not ascertained and therefore could not be controlled for in this analysis. Subsequent sexual violence was controlled for, but may not capture all coercive sex occurring within physically violent relationships during adulthood. We also examined condom use at last intercourse, which may be problematic due to an improper temporal sequence, where condom use is being measured after STI diagnosis and may be in response to having the STI.

Approximately 27% of women ages 18–44 experienced sexual coercion or violence at first intercourse. The relationship between this and STIs indicates that there may be negative consequences resulting from this exposure. The fact that women reporting sexual coercion were more likely to report having an STI may indicate that this form of violence should be

explicitly examined in future studies. Additionally, knowing whether these women received services may help to better understand the mechanisms behind the observed associations. Attention to both the prevention of sexual coercion and its negative consequences may improve women's sexual health.

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Table 1

Detailed categories of sexual coercion or sexual violence at first intercourse, U.S. women aged 18–44 years, National Survey of Family Growth, 2006–2010 (n[1]=9,466).

Sexual coercion or sexual violence	Feelings	Voluntariness	Type of Force	n[1]	Percent[2] within Sexual Violence Category (SE[3])	Percent[2] of Total Population (SE[3])	Percent[2] with Self-reported STI (SE[3])
Neither (73.44%)	Wanted	Voluntary	N/A	3535	51.4 (1.0)	37.7 (0.9)	14.1 (0.9)
	Mixed	Voluntary	None	3380	48.6 (1.0)	35.7 (0.8)	12.8 (0.8)
Sexual Coercion (18.12%)	Mixed	Voluntary	Nonphysical	1093	66.9 (1.8)	12.1 (0.5)	22.2 (2.0)
	Unwanted	Voluntary	None	319	16.3 (1.3)	3.0 (0.3)	8.9 (2.1)
	Unwanted	Voluntary	Nonphysical	289	16.8 (1.4)	3.0 (0.3)	20.2 (4.0)
Sexual Violence (8.44%)	Mixed	Voluntary	Physical	55	5.0 (1.2)	0.4 (0.1)	29.8 (9.4)
	Unwanted	Voluntary	Physical	31	4.5 (1.1)	0.4 (0.1)	17.1 (8.3)
	Mixed	Involuntary	None	53	5.5 (1.3)	0.5 (0.1)	12.3 (5.0)
	Unwanted	Involuntary	None	62	6.9 (1.2)	0.6 (0.1)	14.3 (5.8)
	Mixed	Involuntary	Nonphysical	87	10.7 (2.0)	0.9 (0.2)	27.1 (8.8)
	Unwanted	Involuntary	Nonphysical	190	24.5 (2.3)	2.1 (0.2)	20.2 (4.4)
	Mixed	Involuntary	Physical	51	6.1 (1.3)	0.5 (0.1)	19.8 (8.0)
	Unwanted	Involuntary	Physical	321	36.8 (2.7)	3.1 (0.2)	14.7 (2.6)

[1] Sample sizes are unweighted.

[2] Percentages are weighted.

[3] SE=Standard error.

Table 2

Percent with self-reported Sexually Transmitted Infection (STI), by selected characteristics, U.S. women aged 18–44 years, National Survey of Family Growth, 2006–2010 (n[1]=9,466).

	Sample Size[1]	Self-reported STI (%)
Total		15.0
Sexual coercion or sexual violence at first intercourse**		
Neither	6915	13.5
Sexual Coercion	1701	19.7
Sexual Violence	850	18.4
Age at interview		
18–24 years	2351	14.9
25–29 years	2121	16.3
30–34 years	1858	15.6
35–39 years	1636	14.3
40–44 years	1500	14.1
Race/Ethnicity**		
Non-Hispanic White	4919	16.8
Non-Hispanic Black	1969	16.9
Hispanic	2085	8.5
Other	493	9.8
Education**		
Less than high school	1796	13.6
High school graduate	2525	12.5
Some college or beyond	5144	16.5
Marital Status**		
Married or living together	5049	13.4
Never married	3262	16.9
Other	1155	19.8
Respondent's mother's education**		
Less than high school	2438	10.1
High school graduate	3154	17.2
Some college	2204	16.0
Bachelor's degree or higher	1670	16.0
Parents married at birth		
Yes	7479	14.9
No	1987	15.8
Respondent's mother's age at first birth		
< 18 years	1737	14.2
18–19 years	1969	13.4
20–24 years	3637	16.1
≥ 25 years	2123	15.1

	Sample Size[1]	Self-reported STI (%)
Lived away from parents before age 18		
No	7190	14.6
Yes	2276	16.5
Age at First Intercourse**		
<15 years	1477	23.2
15–17 years	4325	16.6
18–19 years	1976	11.0
≥ 20 years	1688	9.7
Subsequent Forced Sexual Intercourse**		
No	7796	13.5
Yes	1669	22.7
Lifetime number of sexual partners**		
1 Partner	1943	4.9
2–5 Partners	4038	11.9
6–9 Partners	1567	20.8
≥10 Partners	1918	29.2
Condom use at last sexual intercourse		
No	6613	15.4
Yes	2853	14.0

[1] Sample sizes are unweighted.

* χ^2 p-value <0.01;

** χ^2 p-value <0.001.

Table 3

Unadjusted and Adjusted Logistic Regression Models Predicting Self-Reported Sexually Transmitted Infections (STI), U.S. women aged 18–44 years, National Survey of Family Growth, 2006–2010 (n[1]=9,466).

	Unadjusted OR (95% CI)	Model 1[1] Adjusted OR (95% CI)	Model 2[1,2] Adjusted OR (95% CI)	Model 3[1–3] Adjusted OR (95% CI)
Sexual coercion or sexual violence at first intercourse				
Neither	REF	REF	REF	REF
Sexual Coercion	1.58 (1.28–1.95)	1.52 (1.22–1.88)	1.45 (1.17–1.81)	1.27 (1.01–1.60)
Sexual Violence	1.45 (1.13–1.85)	1.38 (1.05–1.81)	1.26 (0.96–1.66)	1.13 (0.85–1.49)

[1]Adjusted for demographics (age, race/ethnicity, marital status, educational attainment), childhood characteristics (respondent's mother's education, parents married at respondent's birth, mother's age at first birth, and living away from parents before age 18), and duration of time between first intercourse and interview.

[2]Adjusted for subsequent sexual violence.

[3]Adjusted for age at first intercourse, number of sexual partners and condom use.