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## Domestic Violence and Sexually Transmitted Diseases: The Experience of Prenatal Care Patients

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### S Y N O P S I S

**Objectives.** The authors analyzed interview responses of patients at a prenatal care clinic to explore whether women who had been victims of sexual and physical abuse were more likely than non-victimized women to have experienced a sexually transmitted disease (STD).

**Methods.** A consecutive sample of 774 prenatal patients of a large health department in North Carolina were interviewed concerning a variety of health issues, including violence and STDs. Logistic regression analysis was used to model the women's STD status as a function of their experiences of sexual and physical abuse, controlling for several potentially confounding factors.

**Results.** Thirty percent of the women reported having experienced at least one STD, with the most common infections being chlamydia and gonorrhea. Twenty-eight percent of the women reported having been victims of abuse; 16% reported physical abuse only, while 12% reported both physical and sexual abuse. The majority of violence was domestic in nature, perpetrated by the victims' husbands, boyfriends, male friends, and relatives. After controlling for confounding variables, the authors found that women who reported both physical and sexual abuse were significantly more likely to have experienced STDs than non-victims (odds ratio [OR] = 2.25; 95% confidence interval [CI] 1.37, 3.69). The logistic regression analysis also showed a relationship of borderline statistical significance between non-sexual physical abuse and STDs.

**Conclusions.** Health care providers should routinely screen patients for both abuse and STDs, and they should assist identified women in accessing appropriate health, social, and legal services.

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Current public health practice concerning the provision of prenatal care services emphasizes the need to address a wide variety of medical and behavioral risk factors when assessing women's clinical histories, factors that may affect the course of their pregnancy and birth outcomes.<sup>1</sup> Recent attention has focused on including domestic violence, both physical and sexual violence, among these risk factors.<sup>2</sup> Domestic violence is a concern not only because of the direct injury it may inflict but also because it may result in other health problems, such as sexually transmitted diseases (STDs).

STDs comprise a significant public health threat to women in general given the high prevalence of these infections and their potentially serious health consequences and sequelae (for example, pelvic inflammatory disease, cancer of the genital tract, infertility, ectopic pregnancy, and poor birth outcomes). In 1995, more than 600,000 STD cases were reported among females in the U.S., with chlamydia being the most common, followed by gonorrhea.<sup>3</sup> In light of these concerns, there have been calls for greater emphasis on STD prevention strategies that target women.<sup>4</sup>

One of the most commonly recommended methods of STD prevention, the use of condoms during sex,<sup>5</sup> requires male cooperation. Clear and open communication between women and their male partners regarding sexual practices (sometimes termed "sexual negotiation") increases the probability of condom use.<sup>6</sup> Condom use is more common among couples in which women feel comfortable discussing sexual matters with their partners.<sup>7</sup> However, traditional gender role standards that define socially appropriate female behavior<sup>8</sup> may impede sexual negotiation so that some women feel uncomfortable requesting (or requiring) that their male partners use condoms.<sup>9</sup> Although the meanings ascribed to condom use and to male reactions to female suggestions of condom use are likely to vary, some of the social norms surrounding sexual behaviors cross many cultural boundaries; such norms may include the beliefs that women should not be assertive in sexual situations, women should emphasize their male partners' pleasure during sex rather than their own safety,<sup>10</sup> and women should not ask their partners about their STD histories or risky behaviors that may have put them (and now the women) at risk for acquiring infections.<sup>11</sup>

Women are even less willing or able to negotiate protective practices in the context of relationships in which they feel less powerful than their male partners. Studies of female sex workers indicate that at least some prostitutes feel that their past use of condoms, or suggestions of con-

dom use, resulted in abusive experiences; consequently, they may be less likely to request the use of condoms, enhancing their risk for acquiring or transmitting STDs.<sup>12,13</sup> Studies of married women and women in relatively permanent relationships have found mixed results concerning whether women fear violent reactions from their partners in response to the suggestion to use a condom.<sup>14-16</sup>

The large number of women who are victims of domestic violence each year may be especially unlikely (or unable) to negotiate safer sex practices with their partners due to the extreme imbalances of power in their relationships. Some research suggests that abuse victims fear that safer sex negotiation with their partners would lead to intensification of the violence already present in their relationships, resulting in less condom use.<sup>17</sup>

Despite the evidence that some women are reluctant or unable to negotiate safer sex practices with male partners due to fear of violent reactions and that abused women may be less likely than other women to use condoms, there has been little research concerning associations between women's experiences of partner violence and women's experiences of STD infections. A study of prenatal care patients in Boston found that women who had suffered abuse during pregnancy (defined as physical or sexual violence or both) were twice as likely as non-abused women to have experienced an STD during their lifetime;<sup>18</sup> however, the potentially differential effects of sexual abuse and non-sexual physical abuse on STD risk were not examined. A Norwegian investigation compared the reported medical histories of 66 physically abused women (recruited from both the emergency department of a local hospital and a local battered women's shelter) with those of 114 non-abused women (recruited from a city population register)<sup>19</sup> and found that abused women were more likely than non-abused women to have suffered from pelvic inflammatory disease (PID), a condition often resulting from an STD infection. A study that examined a variety of health issues among 115 residents of battered women's shelters across the state of Michigan found that approximately 7% of the women who had been sexually abused by their husbands or other partners reported contracting an STD as a result of this abuse.<sup>20</sup> Although these studies suggest links between women's experiences of abuse and their experiences of STDs, each of these previous investigations has suffered from methodological shortcomings (for example, not differentiating between sexual abuse and non-sexual physical abuse, not recruiting representative samples, or not controlling for important confounding variables).

Pregnant women are one group in which it is especially

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important to examine potential associations between violence and STDs because of the high prevalence of domestic violence among women of reproductive age and because STDs may affect the health of both the woman and the fetus. In addition, the vast majority of pregnant women become pregnant by engaging in "unsafe sex" (not using condoms during intercourse), thereby enhancing their likelihood of acquiring and transmitting STDs. Therefore, the study reported here extends past research by examining a relatively large sample of prenatal care patients to explore the associations between women's experiences of sexual and physical abuse and their STD histories, controlling for potentially confounding factors.

### METHODS

**Study setting and sample.** This study was undertaken as part of an evaluation of a prenatal care program in a large health department in North Carolina. All women seen for prenatal care over an approximately eight-month period from October 1992 through May 1993 were eligible for the study. Complete information was available for 774 (92%) of 843 women assessed during this time period; these 774 women comprised the study sample.

**Assessment.** Prenatal patients of the health department were routinely interviewed (usually by a nurse or social worker) using a structured procedure to determine whether the patients were in need of specialized services.

Each woman's experience of sexual abuse was assessed by asking whether she was ever forced to have sexual activities with anyone, and each woman's experience of non-sexual physical abuse was assessed by asking whether she had ever been hit, slapped, kicked, or otherwise physically hurt by anyone. As part of the routine assessment, all abused women were asked about their social relationships with the perpetrators of the violence.

Women's STD histories were assessed during the interviews by asking the women if they had ever been diagnosed with an STD; they were prompted with a list of specific infections (chlamydia, genital warts, gonorrhea, herpes, syphilis, trichomoniasis, HIV). Those who reported having had an STD were asked to identify the type of STD.

The women's use of substances was assessed by asking about their use during the previous year of alcoholic beverages (interviewers asked specifically about consumption of beer, wine, and liquor) and illegal drugs (interviewers asked about a number of specific types of drugs, for example, marijuana, cocaine, "crack," heroin, PCP, psychedelics, and inhalants). Women were also asked about cigarette smoking during the previous year.

We classified women's use of alcohol into three categories (heavy drinkers, moderate drinkers, and non-drinkers) based on their self-reported alcohol consumption patterns during the previous year. We classified women as "heavy drinkers" if they reported usually having six or more alcoholic drinks per drinking session or two to five drinks (or more) per drinking session with these sessions occurring once a week or more. We classified all others who reported any consumption of alcoholic beverages during the previous year as "moderate drinkers."

We classified women as users of illicit drugs if they reported using one or more illicit drugs in the previous year. We classified women as cigarette smokers if they reported usually smoking one or more cigarettes per day in the previous year.

All collected information was entered into the patient's chart, and treatment plans were developed and implemented. Later, patient names were removed and the assessment information was passed to the quality assurance evaluation team.

**Statistical analysis.** We used descriptive statistics (including proportions, means, and standard deviations)

to examine the women's STD histories, experiences of sexual and physical abuse, substance use behaviors in the past year, and sociodemographic characteristics. We also looked at bivariate associations between the women's STD histories and these other variables.

Using unconditional logistic regression analysis<sup>21</sup> and SAS software, we modeled each woman's STD status (a positive STD history vs a negative STD history) as a function of the woman's experience of violence (whether the woman had experienced sexual abuse or physical abuse), controlling for use of illicit drugs, alcohol, and tobacco; previous children; educational level; marital status; younger vs older age; and self-reported ethnicity. The strengths of associations are reported here as odds ratios (ORs) with 95% confidence intervals (CIs).

We included ethnicity as a variable because of the possibility that in this group of low-income women, there may have been differences in cultural norms that influenced the outcome of the analysis; for example, women belonging to different ethnic groups may have differed in their likelihood of revealing a history of abuse or STDs.

**Institutional Review Board approval.** The overall evaluation research protocol, of which this study was a part, was reviewed and approved by the Committee on Human Subjects Institutional Review Board of the School of Public Health at the University of North Carolina at Chapel Hill.

RESULTS

More than a quarter of the 774 women (28% [220/774]) reporting being victims of some type of abuse: 97 women (12%) reported having experienced both sexual and physical abuse, and 123 women (16%) reported having experienced non-sexual physical abuse but not sexual abuse. It is noteworthy that all of the women who had been sexually abused had also been physically abused.

The most common perpetrators of sexual violence were the women's husbands, boyfriends, and male friends (67%); less commonly reported were the women's relatives (17%), multiple perpetrators (15%), and strangers (1%). The women's husbands, boyfriends, and male friends also were the most common perpetrators of non-sexual physical violence (82%), with less common perpetrators being the women's relatives (13% of women) and multiple perpetrators (5%).

Thirty percent of the women reported having been infected with at least one type of STD (Table 1). The most common STD infections were chlamydia and gonorrhea.

**Table 1. Number and percentage of prenatal care patients who reported sexually transmitted diseases, by type of infection, North Carolina, October 1992–May 1993 (N = 774 women)**

Condition	Number reporting	Percent reporting
One or more STDs . . . . .	234	30
Chlamydia infection . . . . .	110	14
Genital warts . . . . .	13	2
Gonorrhea . . . . .	100	13
Herpes . . . . .	30	4
Syphilis . . . . .	12	2
Trichomoniasis . . . . .	6	1
Type not specified . . . . .	7	1

NOTE: Some women reported more than one type of infection.

None of the women reported being infected with HIV.

During the previous year, according to self-report, 361 (47%) of the women reported drinking alcoholic beverages (11% were "heavy drinkers" and 36% were "moderate drinkers"), 110 (14%) had used illicit drugs at least once, and 306 (40%) typically smoked at least one cigarette a day. (See Table 2.)

The mean age of the 774 women was 23.8 years (standard deviation [SD] = 5.4). Eighty-five percent of the women were 30 years old or younger.

**Logistic regression analysis.** After controlling for the substance use-related and sociodemographic factors, we found that sexually abused women were more likely than non-victims to report having been infected with an STD (OR = 2.25, 95% CI 1.37, 3.69). (See Table 2.) Furthermore, a higher percentage of physically abused women than of non-victims reported having had STDs, although the association between physical abuse and STDs was only of borderline statistical significance (OR = 1.54, 95% CI 0.97, 2.45).

Women who were moderate drinkers were more likely than non-drinkers to report having experienced an STD (OR = 1.78, 95% CI 1.22, 2.61), and heavy alcohol use showed a borderline statistically significant positive association with STD infection. Women who used illicit drugs were more likely to report having experienced an STD than non-drug-using women (OR = 1.70, 95% CI 1.03, 2.80). In addition, African American women were more likely to report having experienced one or more STDs than other women (OR = 3.50, 95% CI 2.32, 5.28).

**Table 2. STD histories of prenatal care patients, by history of abuse and other variables, and results of the logistic regression analysis, October 1992–May 1993 (N = 774 women)**

Variable	Number	Percent reporting STD history	Percent reporting no STD history	Odds ratio	95% CI
<b>Abuse</b>					
Physical and sexual abuse . . . . .	97	44	56	2.25 <sup>a</sup>	1.37, 3.69
Physical abuse . . . . .	123	38	62	1.54	0.97, 2.45
No abuse . . . . .	554	26	74	referent	
<b>Alcohol use</b>					
Heavy . . . . .	83	39	61	1.63	0.89, 2.98
Moderate . . . . .	278	39	61	1.78 <sup>a</sup>	1.22, 2.61
None . . . . .	413	23	77	referent	
<b>Illicit drug use</b>					
Yes . . . . .	110	47	53	1.70 <sup>a</sup>	1.03, 2.80
No . . . . .	664	27	73	referent	
<b>Tobacco use</b>					
Yes . . . . .	306	35	65	1.16	0.78, 1.72
No . . . . .	468	27	73	referent	
<b>Previous children</b>					
Yes . . . . .	386	32	68	1.29	0.91, 1.84
No . . . . .	388	29	71	referent	
<b>Education level</b>					
High school graduate . . . . .	473	28	72	0.78	0.54, 1.13
Still in school . . . . .	32	28	72	0.68	0.29, 1.60
Left school without graduating . .	269	34	66	referent	
<b>Marital status</b>					
Married . . . . .	245	18	82	0.76	0.49, 1.18
Not married . . . . .	529	36	64	referent	
<b>Age</b>					
Older (>30 years) . . . . .	114	23	77	0.64	0.38, 1.08
Younger (≤30 years) . . . . .	660	32	68	referent	
<b>Ethnic group</b>					
African American . . . . .	401	42	58	3.50 <sup>a</sup>	2.32, 5.28
Latina . . . . .	51	6	94	0.41	0.12, 1.46
Non-Latina white . . . . .	282	20	80	referent	
Other . . . . .	40	15	85	1.43	0.54, 3.78

NOTE: The following coding scheme was used for the logistic regression analysis: STD status (1 if had an STD, 0 otherwise); sexual abuse (1 if yes, 0 otherwise); physical abuse (1 if yes, 0 otherwise); heavy alcohol use (1 if yes, 0 otherwise); moderate alcohol use (1 if yes, 0 otherwise); illicit drug use (1 if yes, 0 otherwise); tobacco use (1 if yes, 0 otherwise); previous children (1 if yes, 0 otherwise); high school graduate (1 if yes, 0 otherwise); still in school (1 if yes, 0 otherwise); marital status (1 if married, 0 otherwise); age (1 if > 30 years old, 0 otherwise); African American (1 if African American, 0 otherwise); Latina (1 if Latina, 0 otherwise); other ethnicity (1 if ethnicity other than African American, Latina, or Non-Latina white, 0 otherwise).

<sup>a</sup>Statistically significant at the  $P < 0.05$  level

STD = sexually transmitted disease

CI = confidence interval

**These findings suggest that victims of abuse, especially sexual abuse, are more likely than other women to suffer from STDs.**

## DISCUSSION

Our results agree with those of other studies in finding that many prenatal care patients have experienced STDs (most commonly chlamydia and gonorrhea)<sup>18</sup> and that many have suffered physical or sexual violence, often at the hands of their intimate partners.<sup>22</sup> Women who were both sexually and physically abused were more likely than non-abused women to have experienced an STD, and physical abuse showed an association of borderline statistical significance with STDs, findings consistent with the limited empirical information available from past studies concerning this association.<sup>18,19</sup> In addition, these findings are unique in showing that, among prenatal care patients, the association between having experienced both types of abuse and STDs is stronger than the association between non-sexual physical abuse and STDs and that these associations were found even after we controlled for potentially confounding factors, including substance use.

Although these research findings suggest that women in abusive situations, especially sexually abusive situations, are more likely than other women to suffer from STDs, the reasons why this may be true are still open to question. The methodology used in this study cannot establish whether the STD of an abused women was transmitted to her during a sexually abusive act, or even whether the woman acquired the STD from her abuser. However, other research suggests that male abusers tend to be sexually active with multiple partners, thereby enhancing their own risk of contracting STDs and transmitting them to the woman they are abusing.<sup>23</sup> An alternative explanation of this study's findings could be that women who suffer physical and sexual abuse are more likely than other women to engage in sexual activities with multiple partners, resulting in their increased risk of STD infection. The methodological constraints of this study still leave questions concerning the exact nature of

the association between abuse and STDs.

The links between violence and STDs among prenatal care patients have implications for public health practice. First, providers of prenatal care should assure that all pregnant women are routinely screened for both STDs and exposure to violence and that identified women are provided with the appropriate treatment or other interventions. Toward this end, providers of care for pregnant women, for STD patients, and for victims of violence (such as the staff of domestic violence programs and battered women's shelters) should strengthen their working relationships with each other. Second, providers of care to women in violent relationships should be sensitive to the potentially dangerous implications posed to these women by STD prevention measures such as condom use and partner notification.

This study found that several factors, in addition to violence, were associated with STD infection. In particular, STDs were significantly more common among women who drank moderate amounts of alcohol than among non-drinkers and more common among users than non-users of illicit drugs. The data also showed a relationship of borderline statistical significance (probably not reaching statistical significance due to the relatively small sample of heavy drinkers) between heavy drinking and STDs.

The results of this study must be viewed in light of its methodologic limitations. First, the analysis reported here was part of a larger investigation designed to examine the effectiveness of a prenatal care clinic, not to specifically examine links between violence and STDs. All of the study information was drawn from the women's clinical interview responses and therefore may be subject to various forms of recall and response bias, especially given that both abuse and STDs are socially stigmatized experiences that women may hesitate to report. Thus, this study would have benefited from additional confirmatory information regarding the violence in the women's lives,

for example, from medical records or police reports. In addition, it would have been helpful to supplement self-reported STD histories with information from medical records and lab findings. Furthermore, the battery of questions used to assess violence could have been more extensive, including questions on additional forms of abuse such as psychological abuse and fear of harm.

Second, although this study did find a positive association between violence and STDs, it must be kept in mind that this study was cross-sectional in nature and relied upon prevalence data. Therefore, we cannot be sure whether the violence-STD association reported here reflects a causal relationship. We encourage future researchers to employ longitudinal study designs through which they may clearly describe the patterns of both violent events and STD occurrences within women's lives.

Finally, since the study focused on prenatal care patients of a North Carolina health department (a group of pregnant, relatively young, poor women), it is unclear whether these findings are generalizable to

other populations of women.

Violence in women's lives is an understudied public health problem that has many implications for the well-being of women and their families. Health care providers, researchers, legal professionals, and others concerned with women's issues should work together to prevent domestic abuse and to offer therapeutic health, social, and legal services to victims of violence.

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