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Intimate Partner Violence and Women's Depression Before and During Pregnancy

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Depressive symptoms of 95 prenatal care patients were examined relative to the women's experiences of intimate partner violence. Women who were victims of psychological aggression during the year before pregnancy were not at elevated risk for depression except when the psychological aggression was very frequent. However, during pregnancy, psychological aggression was more closely tied to women's depression levels, regardless of its frequency. In addition, women who experienced any level of physical assault or sexual coercion by their intimate partners (before or during pregnancy) had higher levels of depressive symptoms compared to nonvictims.

Keywords: *depression; domestic violence; mental health; physical abuse; pregnancy; research; violence; women*

There is a growing body of research showing that many women, including those who are pregnant, have been victims of intimate partner violence, including physical and sexual assault (Bureau of Justice Statistics, 2000; Gelles, 1974; Rennison & Welchans, 2000; Straus & Gelles, 1990; Tjaden & Thoennes, 1998, 2000). Each year, approximately 1.5 million women in the United States are physically and/or sexually assaulted by their intimate partners (Rennison & Welchans, 2000; Tjaden &

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Thoennes, 2000), with such victimization being most likely when women are of reproductive age (Bureau of Justice Statistics, 2000; Tjaden & Thoennes, 2000).

Given this high rate of violence directed at women during their childbearing years, it is not surprising that many women experience such abuse around the time of pregnancy. Prenatal care-based studies report that from 4% to 26% of patients are violence victims before pregnancy, and 1% to 17% are violence victims during pregnancy (Amaro, Fried, Cabral, & Zuckerman, 1990; Bayatpour, Wells, & Holford, 1992; Berenson, San Miguel, & Wilkinson, 1992; Berenson, Stiglich, Wilkinson, & Anderson, 1991; Berenson, Wiemann, Wilkinson, Jones, & Anderson, 1994; Campbell, Poland, Waller, & Ager, 1992; Campbell et al., 1999; Cokkinides & Coker, 1998; Curry, Perrin, & Wall, 1998; Dye, Tolliver, Lee, & Kenny, 1995; Fernandez & Krueger, 1999; Gielen, O'Campo, Faden, Kass, & Xue, 1994; Helton, McFarlane, & Anderson, 1987; Helton & Snodgrass, 1987; Martin, English, Clark, Cilenti, & Kupper, 1996; McFarlane & Parker, 1996; McFarlane, Parker, Soeken, & Bullock, 1992; Parker, McFarlane, & Soeken, 1994; Sampsel, Petersen, Murtlant, & Oakley, 1992; Stewart & Cecutti, 1993; Webster, Sweett, & Stolz, 1994). Community-based studies also have found high rates of violent victimization of women before and during their pregnancies. For example, a statewide survey of a representative sample of postpartum North Carolina women found that 7% had been physically abused during the year before pregnancy, and 6% had been physically abused during pregnancy (Martin, Griffin, et al., 2001; Martin, Mackie, Kupper, Buescher, & Moracco, 2001).

Intimate partner violence may result in a number of women's health problems, including mental health problems such as depression. The National Institute of Mental Health reports that violence against women and girls, including physical and sexual violence, may be responsible at least in part for the relatively higher rate of depression seen among females compared to males (National Institute of Mental Health, 2001). Depressive disorders (including major depressive disorder, dysthymic disorder, and bipolar disorder) are the most common psychiatric disorders found in the adult U.S. population (National Institute of Mental Health, 2001), with depression being twice as common among females than among males (Kornstein, 1997; National Institute of Mental Health, 2001; Ustun, 2000; Williams et al., 1995; Wu & Anthony, 2000). The lifetime prevalence of depression among women has been estimated to be between 10% and 25% in community samples, with the prevalence peaking during women's reproductive years (Frank, Weihs, Minerva, & Lieberman, 1998; Kornstein, 1997; Szewczyk & Chennault, 1997; Williams et al., 1995; Wisner, Gelenberg, Leonard, Zarin, & Frank, 1999; Wu & Anthony, 2000). Although pregnancy is often viewed by the general population as being a period of enhanced emotional well-being for women (Barrio & Burt, 2000; Bhatia & Bhatia, 1999), recent studies from community and national samples have found that many pregnant women (from 9% to 16%) suffer from depression (Barrio & Burt, 2000; Gotlib, Whiffen, Mount, Milne, & Cordy, 1989; Holcomb, Stone, Lustman, & Gavard, 1996; Kornstein, 1997; Llewellyn, Stowe, & Nemeroff, 1997; Wisner et al., 1999). In addition to violent victimization, other conditions have been implicated as potential risk factors for depression during pregnancy, including being of low socioeconomic status and having had a depressive

disorder prior to pregnancy (Barrio & Burt, 2000; Bernazzani, Saucier, David, & Borgeat, 1997; Bhatia & Bhatia, 1999; Ritter, Hobfoll, Lavin, Cameron, & Hulsier, 2000; Seguin, Potvin, St.-Denis, & Loiselle, 1995).

Although depression at any time during a woman's lifetime is of concern, depression around the time of pregnancy is of special importance for a number of reasons. For example, depression during pregnancy has been linked to numerous negative health-related behaviors and outcomes, including poor nutrition, increased substance use (including alcohol, illicit drugs, and tobacco), inadequate prenatal care, decreased fetal growth, preeclampsia, premature infant delivery, delivery of low-birth-weight infants, postnatal depression, and suicide (Barrio & Burt, 2000; Hoffman & Hatch, 2000; Horrigan, Schroeder, & Schaffer, 2000; Kurki, Hiilesmaa, Raitasalo, Mattila, & Ylikorkala, 2000; Llewellyn et al., 1997; Najman, Andersen, Bor, O'Callaghan, & Williams, 2000; Spinelli, 1998). After the birth of the infant, untreated depression may negatively affect mother-infant attachment, which may ultimately result in impairment of the infant's development (Llewellyn et al., 1997). Studies have found that maternal depression may be manifested by the mother being insensitive to her infant and by being unavailable to meet the needs of her infant (Cassell & Coleman, 1995; Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986; Cox, Paley, Payne, & Burchinal, 1999). Mothers with depressive symptoms have been found to exhibit higher levels of yelling, spanking, and feeling annoyed with their children (Lyons-Ruth, Wolfe, & Lyubchik, 2000). Depressed mothers also may have difficulties managing distressed infants, tending to be inconsistent and irritated by their children's needs. This may result in hostile mother-infant interactions and even physical abuse of the infant (Cassell & Coleman, 1995).

Although experiencing both violence and depression during pregnancy may adversely affect the well-being of the mother and, later, the infant, only a limited amount of research has examined both violence and depression in the lives of pregnant women. For example, a study of obstetric patients found that 14% of the 81 women studied who experienced violence before and/or during pregnancy had a history of depression, compared to only 3% of women who had not experienced such violence; however, it is not clear from this report exactly how women's histories of depression were assessed (Hillard, 1985). Another study of prenatal patients found that 92 women who had experienced violence during pregnancy had significantly higher levels of depressive symptoms in the past year compared to women who had not experienced such violence; however, this study did not examine the impact of physical violence separate from that of sexual violence (Amaro et al., 1990). An investigation of women interviewed 3 to 5 days postpartum found that 83% of 41 women who were battered during pregnancy were depressed, compared to 57% of women who had never been victimized; however, the assessment of depression was somewhat limited because it was based on only one question (Campbell et al., 1992). A study of obstetric patients in Kuwait found that women who had been victims of assault at some time during their lifetimes had significantly higher levels of depressive symptoms during pregnancy than did those with no assault histories. However, this study did not clearly examine the social relationship of the assault perpetrator to the victims (e.g., intimate

partner, stranger) or the timing of the violence in relation to depressive symptoms (i.e., the victimization may have occurred when the woman was a child, nonpregnant adult, or pregnant adult; Nayak & Al-Yattama, 1999).

Taken together, this past research provides important information concerning the potential relationship between women's violent victimization experiences and depression occurring during the time of pregnancy. However, most of the past studies in this area have focused on only one form of violence, most typically physical assault. Thus, less is known about how other important forms of intimate partner violence, such as psychological aggression, sexual violence, and violence-related injuries, may be associated with pregnant women's depressive symptoms. Furthermore, additional research is needed to examine whether higher frequencies of violent victimization by an intimate partner both before and during pregnancy increase women's risk of depression.

This article extends our knowledge in these areas by examining associations between women's experiences of several forms of intimate partner violence (including the frequency of this violence) and depressive symptoms both before and during pregnancy. Studying a convenience sample of pregnant women from North Carolina, this study addresses the following research questions:

1. Do women who have experienced particular types of intimate partner violence (psychological aggression, physical assault, sexual coercion, and violence-related injuries) have higher levels of depressive symptoms, both before pregnancy and during pregnancy, than women who have not experienced such violence?
2. Among women victimized by intimate partner violence (before and/or during pregnancy), are the depressed women more likely to have experienced more frequent violence compared to the nondepressed women?

Method

Sample Recruitment

Ninety-five study participants were recruited from two North Carolina prenatal care clinics that predominately serve low-income women. After obtaining the women's clinical histories (including clinical screening for physical violence) and providing clinical care, the clinicians described the research study to eligible study participants and invited them to participate in the project. Patients were eligible to enter the study if they were at least 18 years of age, spoke English, and began prenatal care some time before their 6th month of pregnancy. In addition, because we hoped to have somewhat similar numbers of women who had experienced physical violence during pregnancy and those who had not experienced physical violence during pregnancy, the clinicians were asked to recruit a nonvictimized woman for study after they had recruited each physical violence victim for study.

Assessment

A structured research interview was administered to the study participants by well-trained female research staff. This assessment occurred when the women were approximately 6 to 7 months pregnant. Study interviews were conducted in private rooms in the health care clinics to help assure confidentiality. Great care was taken to establish rapport with the study participants prior to interview administration. The study was described to the women, and it was stressed that truthful answers were needed to potentially sensitive questions to gain accurate insights concerning women's health. An informed-consent form was administered to the participants to assure them that their responses would be treated confidentially and that their participation (or nonparticipation) in the study would not in any way affect their or their family's health care. All respondents were provided with a brochure describing several types of health-related services that they could access free of charge (including domestic violence services and mental health services), and they were given a modest monetary "thank-you gift" for their involvement in the study.

The study interview included a wide range of topics. Information was collected concerning the women's depressive symptoms, experiences of intimate partner violence, and sociodemographic characteristics.

The women's depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is a list of 20 items, each item describing a depressive symptom such as "I felt sad" and "I was bothered by things that don't usually bother me." The respondent rates each item on a 4-point scale, indicating how often she has experienced the symptom, from *rarely or none of the time* (a rating of 0) to *most or all of the time* (a rating of 3). Study women were asked about their symptoms of depression for each of two time periods, specifically, during the year before they became pregnant and during their pregnancy. Item ratings were summed to create CES-D scores that indicated the women's levels of depressive symptoms during the year before pregnancy and during pregnancy. Scores equal to or greater than an empirically derived cut-point of 16 are suggestive of clinical levels of depression (Myers & Weissman, 1980; Roberts & Vernon, 1983). Therefore, for analysis purposes, study women were classified into two groups on the basis of their CES-D scores: those who evidenced clinically relevant levels of depressive symptoms (i.e., those who scored 16 or more on the CES-D) and those who did not evidence clinically relevant levels of depressive symptoms (i.e., those who scored less than 16 on the CES-D). For ease of discussion throughout this article, women in the former group will be referred to as "depressed," whereas those in the latter group will be referred to as "nondepressed."

The women's experiences of intimate partner violence were assessed using the Conflict Tactics Scales 2 (CTS-2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996), a revision and expansion of the original Conflict Tactics Scales (Straus, 1979). The CTS-2 is a list of behaviors that may have occurred during the women's relationships with their partners, either within the context of a disagreement or at some other

time. This study used CTS-2 items that assessed the male partner's violent behaviors toward the female respondent. For each item, the respondent indicated how frequently the behavior occurred within each of two specified time periods during the couple's relationship, namely, during the 12 months before the woman became pregnant and during the pregnancy. For each item, the seven frequency response categories included *never*, *once*, *twice*, *3 to 5 times*, *6 to 10 times*, *11 to 20 times*, and *more than 20 times*. Responses to particular items are used to create the following CTS-2 scales: Psychological Aggression (composed of 8 items, including behaviors such as insulting or swearing at one's partner or shouting or yelling at one's partner); Physical Assault (composed of 12 items, including behaviors such as pushing or shoving one's partner or beating up one's partner); Sexual Coercion (composed of 7 items, including behaviors such as making one's partner have sex without a condom or physically forcing one's partner to have sex); and Injury (composed of 5 items describing various injuries received as a result of partner violence, such as having a sprain, bruise, or small cut or passing out because of a head injury). Following the suggestions of Straus (1995), two methods of scoring the CTS-2 were used in this article. First, for each of the CTS-2 scales (e.g., Psychological Aggression, Physical Assault, Sexual Coercion, and Injury), women were classified as having been victims of the particular type of violence (or violence-related injury) under consideration if they reported having experienced one or more of the items composing the scale within the relevant time period. For example, a woman who reported having experienced one or more of the 8 items composing the Psychological Aggression scale during the year before pregnancy would be classified as having been a victim of psychological aggression during the year before pregnancy. Because some women experienced more than one type of violence before pregnancy, women were also classified into mutually exclusive groups to describe the patterns of violence that they experienced. For example, one group experienced no violence before pregnancy, other groups experienced one type of violence before pregnancy (e.g., psychological aggression only, physical assault only), and other groups experienced two types of violence before pregnancy (e.g., psychological aggression plus physical assault). The second method of scoring the CTS-2 assessed the average monthly frequency of victimization among women who had experienced each of the types of partner violence. In particular, the approximate midpoints of the frequency response categories were used for scoring purposes (i.e., *never* is scored as 0, *once* as 1, *twice* as 2, *3 to 5 times* as 4, *6 to 10 times* as 8, *11 to 20 times* as 15, and *more than 20 times* as 25). Responses to particular items were summed to create CTS-2 frequency scale scores for Psychological Aggression, Physical Assault, Sexual Coercion, and Injury. To adjust these frequency scale scores for differences in the duration of the two time periods under consideration (specifically, the duration of each woman's relationship with her male partner during the 12 months prior to pregnancy onset and the duration of the woman's relationship with her male partner while she was pregnant), each frequency scale score was divided by the number of months that the couple had been in union during the relevant time period. Thus, an average monthly frequency score was created for each particular type of violence as well as for

injuries received both during pregnancy and during the year before pregnancy, with higher scores suggesting more frequent violent behavior or violence-related injuries.

The study interview also asked women about their sociodemographic characteristics. Information was collected concerning each woman's age, employment status, education level, race or ethnicity, marital status, whether she previously had children, and her poverty status (as assessed by whether she received Medicaid benefits during pregnancy).

Analysis

Descriptive statistics were used to examine the sociodemographic characteristics of the study women. Descriptive statistics and bivariate analyses (specifically, *t* tests) were used to compare the women's mean levels of depressive symptoms (as assessed by the women's CES-D scores) by the women's sociodemographic characteristics and by their experiences (yes vs. no) of each of the types of intimate partner violence (psychological aggression, physical assault, sexual coercion, and injury) both during the year before pregnancy and during pregnancy. In addition, descriptive statistics were used to examine the mean depression scores of the women by their experiences of various combinations of violence (e.g., no violence, one type of violence, two types of violence). Depressed and nondepressed women's mean monthly frequencies of violent victimization (as assessed by the CTS-2 frequency scale scores) were compared using descriptive and bivariate analyses, with these analyses being restricted to women who had experienced each of the types of violence under consideration. (For example, women were included in the analysis of psychological aggression during the year before pregnancy only if they had experienced one or more psychologically aggressive acts during the year before pregnancy.)

Institutional Review Board for Human Subjects Approval

All procedures used in this study were approved by the Institutional Review Board for Human Subjects Research of the University of North Carolina at Chapel Hill.

Results

Characteristics of the Women

The women ranged from 18 through 45 years of age at the time of the study interview, with their mean age being 26.5 years ($SD = 6.4$). Table 1 shows that 72% of the women were employed and that 80% had at least a high school graduate level of education. About half of the women were non-Hispanic White, and the others were African American. Although only 22% of the women were married, 59% already had one or more children. The majority of women were poor, as evidenced by 86% having received Medicaid benefits during pregnancy.

Table 1
Sociodemographic Characteristics (N = 95)

Characteristic	<i>n</i>	%
Employed		
No	27	28
Yes	68	72
Education		
Less than high school	19	20
High school graduate or more	76	80
Race or ethnicity		
Non-Hispanic White	45	47
African American	50	53
Marital status		
Not married	74	78
Married	21	22
Previous children		
Yes	56	59
No	39	41
Medicaid ^a		
Yes	79	86
No	13	14

a. Three participants did not have Medicaid information available.

Depressive Symptoms Before and During Pregnancy

Inspection of the women's CES-D scores found that many of the women had high levels of depressive symptoms, especially during pregnancy. More specifically, examining women's reports of their feelings during the year before pregnancy found a mean CES-D score of 16.3 ($SD = 12.8$), with 39 (41%) of the women being depressed. The depression scores rose during pregnancy so that the women's mean CES-D score was 21.9 ($SD = 10.9$), with 69 (73%) of the women being depressed.

Depressive Symptoms Related to Sociodemographic Characteristics

Although the CES-D scores of the women during the year before pregnancy were somewhat higher among women who were unemployed, less educated, non-Hispanic White, unmarried, with previous children, and on Medicaid, Table 2 shows that none of these associations reached the traditional level of statistical significance. Furthermore, none of the sociodemographic characteristics was significantly related to the women's CES-D scores during pregnancy.

Depressive Symptoms Related to Partner Violence

Although women who had been victims of psychological aggression before pregnancy did not differ significantly from those who had not experienced such aggression

Table 2
CES-D Scores by Sociodemographic Characteristics (N = 95)

Characteristic	Before Pregnancy			During Pregnancy		
	<i>M</i>	<i>SD</i>	<i>p</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Employed						
No	19.9	14.1	.08	22.1	11.2	.83
Yes	14.8	12.0		21.6	10.1	
Education						
Less than high school	20.2	14.8	.13	21.1	9.3	.69
High school graduate or more	15.3	12.1		22.2	11.2	
Race or ethnicity						
Non-Hispanic White	18.5	15.0	.10	20.8	11.4	.33
African American	14.2	10.1		23.0	10.4	
Marital status						
Not married	16.9	12.7	.34	21.4	11.0	.39
Married	13.9	13.1		23.8	10.4	
Previous children						
Yes	16.5	13.2	.85	22.4	10.2	.66
No	15.9	12.3		21.4	11.8	
Medicaid ^a						
Yes	16.3	12.6	.73	21.6	10.9	.98
No	14.9	14.3		21.7	10.7	

Note: CES-D = Center for Epidemiologic Studies Depression Scale (Radloff, 1977). *p* values are from *t* tests.

a. Three participants did not have Medicaid information available.

before pregnancy in terms of their mean levels of depressive symptoms before pregnancy, women who had been victims of physical assault, sexual coercion, or violence-related injuries before pregnancy had higher mean levels of depressive symptoms before pregnancy than did women who had not experienced these events (see Table 3). More specifically, almost all of the study women (85 of the 95, or 89%) had been victims of at least one act of psychological aggression by their partner during the year before pregnancy; however, the mean CES-D scores before pregnancy of those who experienced psychological aggression did not differ significantly from those who had not experienced psychological aggression (16.7 vs. 12.4, $p = .32$). In contrast, only about half of the women (54 of 95, or 57%) had experienced at least one act of physical assault by their partners during the year before pregnancy, and the mean CES-D score before pregnancy of the physically assaulted women was significantly higher than that of the nonassaulted women (20.4 vs. 10.8, $p < .01$). Similarly, about half of the women (55 of 95, or 58%) had experienced at least one sexually coercive act by their partner during the year before pregnancy, and the mean CES-D score before pregnancy of the sexually coerced women was significantly higher than that of women who had not been sexually coerced (19.3 vs. 12.1, $p < .01$). Given this level of violence in the women's lives before pregnancy, it was not surprising that almost half of the women (41 of 95, or 43%) had experienced at least one violence-related injury during the year

Table 3
CES-D Scores by Violence Experiences (N = 95)

Violence Experience	Before Pregnancy				During Pregnancy			
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>p</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Any psychological aggression								
Yes	85	16.7	12.6	.32	82	22.7	11.1	.10
No	10	12.4	14.3		13	17.4	8.1	
Any physical assault								
Yes	54	20.4	12.4	<.01	38	25.3	11.2	.01
No	41	10.8	11.2		57	19.7	10.1	
Any sexual coercion								
Yes	55	19.3	12.5	<.01	46	24.0	11.3	.08
No	40	12.1	12.1		49	20.0	10.2	
Any violence inflicted injury								
Yes	41	21.8	13.0	<.01	26	24.7	11.6	.13
No	54	12.0	10.9		69	20.9	10.5	

Note: CES-D = Center for Epidemiologic Studies Depression Scale (Radloff, 1977). *p* values are based on *t* tests.

before pregnancy, with those who were injured having a significantly higher mean CES-D score than the noninjured women (21.8 vs. 12.0, $p < .01$).

Table 3 also presents findings concerning the women's levels of depressive symptoms during pregnancy by their experiences of partner violence during pregnancy. Most of the women (82 of 95, or 86%) had been victims of at least one act of psychological aggression by their partner during pregnancy, with the mean CES-D score during pregnancy of those experiencing such aggression being somewhat higher than that of those who had not experienced such aggression (22.7 vs. 17.4, $p = .10$). Forty percent of the women (38 of 95) had experienced at least one act of physical assault by their partner during pregnancy; furthermore, the mean CES-D score during pregnancy of the physically assaulted women was significantly higher than that of the nonassaulted women (25.3 vs. 19.7, $p = .01$). About half of the women (46 of 95, or 48%) had experienced at least one sexually coercive act during pregnancy; moreover, the mean CES-D score during pregnancy of sexually coerced women was higher than that of women not sexually coerced, with this association approaching statistical significance (24.0 vs. 20.0, $p = .08$). About a quarter of the women (26 of 95, or 27%) had experienced at least one violence-related injury during pregnancy; although the injured women had a higher mean CES-D score during pregnancy than did the noninjured women, this difference was not statistically significant (24.7 vs. 20.9, $p = .13$).

Examination of the women's mean CES-D scores stratified by the patterns of violence they experienced before and during pregnancy found that depression scores

Table 4
CES-D Scores by Patterns of Violence Experienced (*N* = 95)

Pattern of Violence	Before Pregnancy			During Pregnancy		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
No violence	6	13.0	18.6	10	17.8	9.1
One type of violence	25	10.2	9.9	35	19.6	9.8
Psychological only	21	10.0	11.5	32	19.9	10.3
Physical only	1	20.0				
Sexual only	3	8.7	2.5	3	16.0	4.0
Two types of violence	19	12.7	8.4	15	23.9	11.6
Psychological + physical	8	14.3	10.0	4	26.5	12.9
Psychological + sexual	11	11.6	7.2	11	23.0	11.1
Three types of violence	8	17.4	10.7	13	22.4	10.4
Psychological + physical + sexual	4	18.8	10.2	9	24.7	11.9
Psychological + physical + injury	4	16.0	11.2	3	20.7	9.3
Psychological + sexual + injury				1	7.0	
All four types of violence	37	22.5	13.2	22	26.1	11.5

Note: Only the violence patterns evidenced by the study women are presented here. (We did not present the other possible violence patterns, e.g., physical plus sexual, because none of the women experienced such patterns.) CES-D = Center for Epidemiologic Studies Depression Scale (Radloff, 1977).

were highest among women who had experienced many types of violence (see Table 4). During the year before pregnancy, 6 women (6 of 95, or 6%) experienced no violence, 25 (25 of 95, or 26%) experienced one type of violence (usually psychological aggression), 19 (19 of 95, or 20%) experienced two types of violence, 8 (8 of 95, or 8%) experienced three types of violence, and 37 (37 of 95, or 39%) experienced all four types of violence. The mean CES-D score of women who did not experience any violence during the year before pregnancy was 13.0, compared to 10.2 for those who experienced one type of violence, 12.7 for those who experienced two types of violence, 17.4 for those who experienced three types of violence, and 22.5 for those who experienced all four types of violence.

Table 4 also shows that women were less likely to experience multiple types of violence during pregnancy compared to the year before pregnancy. More specifically, when the women's patterns of violence were examined during pregnancy, 10 women (10 of 95, or 11%) did not experience any violence, 35 (35 of 95, or 37%) experienced only one type of violence (typically psychological aggression), 15 (15 of 95, or 16%) experienced two types of violence, 13 (13 of 95, or 14%) experienced three types of violence, and 22 (22 of 95, or 23%) experienced all four types of violence. In addition, there was a tendency for women's CES-D scores during pregnancy to increase with increasing types of violence experiences during pregnancy. In particular, the mean CES-D scores of women who did not experience violence during pregnancy was 17.8, compared to 19.6 among women who experienced one type of violence, 23.9 among those who experienced two types of violence, 22.4 among those who experienced

three types of violence, and 26.1 among those who experienced all four types of violence.

In the analyses restricted to violence victims, women who were depressed before pregnancy (i.e., those who scored 16 or more on the CES-D) tended to report higher monthly frequencies of violent victimization compared to nondepressed women, but only some of these associations reached the traditional level of statistical significance (see Table 5). More specifically, almost half of the women who had experienced one or more acts of psychological aggression by their partners during the year before pregnancy were depressed during that year (37 of the 85 women, or 44%). Furthermore, these 37 depressed women experienced significantly higher rates of psychological aggression before pregnancy than did the 48 nondepressed women. (Depressed women experienced a mean of 4.3 psychologically aggressive acts per month, whereas nondepressed women experienced a mean of 2.1 psychologically aggressive acts per month, $p < .01$.) Although slightly more than half of the women who had experienced one or more acts of physical assault by their partner during the year before pregnancy were depressed during that year (31 of the 54 women, or 57%), the depressed women did not differ significantly from the nondepressed women in terms of the frequency of these violent experiences before pregnancy. (Depressed women experienced a mean of 2.6 physical assaults per month, and nondepressed women experienced a mean of 1.5 physical assaults per month, $p = .19$.) Thirty of the 55 women (55%) who experienced one or more acts of sexual coercion by their partner during the year before pregnancy were depressed during that year. Although the depressed women experienced higher rates of sexual coercion than did the nondepressed women (depressed women experienced a mean of 1.7 sexually coercive acts per month, and nondepressed women experienced a mean of 1.0 sexually coercive act per month), this difference in rates was not statistically significant ($p = .15$). More than half of the women who experienced one or more violence-related injuries from their partner during the year before pregnancy were depressed (26 of the 41 injured women, or 63%); however, the rate of injuries during this year was not significantly different between depressed and nondepressed women. (Depressed women experienced a mean of 1.0 injury per month, and nondepressed women experienced an average of 0.6 injuries per month, $p = .40$.)

Examination of the frequency of violence among women who experienced each type of partner violence or injury during pregnancy by their depression status during pregnancy produce somewhat more mixed findings (see Table 5). Almost three quarters of the women who experienced at least one act of psychological aggression during pregnancy were depressed during pregnancy (61 of the 82 women, or 74%); however, the depressed women did not experience significantly higher rates of this aggression during pregnancy than did the nondepressed women. (Depressed women experienced a mean of 5.1 psychologically aggressive acts per month, and nondepressed women experienced a mean of 4.7 psychologically aggressive acts per month, $p = .74$.) Approximately four fifths of the women who had experienced one or more acts of physical assault by their partner during pregnancy were depressed during pregnancy (31 of the 38 assaulted women, or 82%). However, the depressed women experienced

Table 5
Among Victims of Each Type of Violence, Mean Monthly Frequencies of
Violence on the CTS-2, Stratified by Depression Status (*N* = 95)

	Before Pregnancy				During Pregnancy			
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>p</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Victims of psychological aggression								
Depressed	37	4.3	3.2	<.01	61	5.1	4.5	.74
Nondepressed	48	2.1	2.4		21	4.7	5.6	
Victims of physical assault								
Depressed	31	2.6	2.7	.19	31	2.7	4.1	.49
Nondepressed	23	1.5	3.2		7	5.4	9.8	
Victims of sexual coercion								
Depressed	30	1.7	1.8	.15	37	2.0	2.4	.97
Nondepressed	25	1.0	1.2		9	2.0	1.9	
Victims who were injured								
Depressed	26	1.0	1.7	.40	20	0.7	0.7	.43
Nondepressed	15	0.6	1.1		6	1.7	2.8	

Note: Women who scored 16 or more on the Center for Epidemiologic Studies Depression Scale (Radloff, 1977) were classified as being depressed. CTS-2 = Conflict Tactics Scales 2 (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). *p* values are based on *t* tests.

somewhat lower (albeit non–statistically significant) rates of physical assault during pregnancy than did the nondepressed women. (Depressed women were assaulted a mean of 2.7 times per month, whereas nondepressed women were assaulted a mean of 5.4 times per month, $p = .49$.) The majority of women who experienced at least one sexually coerced act by their partner during pregnancy were depressed during pregnancy (37 of 46 sexually coerced women, or 80%). However, the depressed women experienced a similar frequency of this type of violence as the nondepressed women. (Both depressed and nondepressed women were sexually coerced a mean of 2.0 times per month, $p = .97$.) Finally, although the majority of women who experienced at least one violence-related injury during pregnancy were depressed (20 of 26 injured women, or 77%), the depressed and nondepressed women were not significantly different in terms of the frequencies of these injuries during pregnancy. (Depressed women were injured an average of 0.7 times per month, and nondepressed women were injured an average of 1.7 times per month, $p = .43$.)

Discussion

These results agree with those of past research in finding that women may have high levels of depressive symptoms both before and during pregnancy (Barrio & Burt,

2000; Gotlib et al., 1989; Holcomb et al., 1996; Kornstein, 1997; Llewellyn et al., 1997; Wisner et al., 1999). In particular, 41% of the women in this study evidenced clinically relevant levels of depressive symptoms during the year before pregnancy, and almost three quarters of the women evidenced similarly high depression levels during pregnancy. This high proportion of depressed women may be because of several factors, including the fact that many of the women had been victims of intimate partner violence. In addition, the sample women were relatively poor, thus placing them at greater risk for depression. Another potential reason this study found such high rates of depression among the study participants may be related to the fact that a depression-screening instrument (the CES-D) was used to examine depression as opposed to a more comprehensive procedure, such as diagnosing depression based on clinical interviews using the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994). Depression-screening tools such as the CES-D may result in more “false positives” than more rigorous, lengthy, clinical diagnostic psychiatric assessments.

Most of the women in this study (approximately 85%) experienced at least one psychologically aggressive act perpetrated by their intimate partner both during the year before pregnancy and during pregnancy. This finding is consistent with past research that suggests that low levels of psychological aggression, such as arguing with partners, are common in pregnant women’s relationships with their partners (Martin, Griffin, et al., 2001).

This research also found that women who were victims of psychological aggression during the year before pregnancy were not at elevated risk for depression except when the psychological aggression was very frequent. However, during pregnancy, psychological aggression was more closely tied to women’s depression levels regardless of the frequency of the aggression. In addition, women who experienced any level of physical assault or sexual coercion by their intimate partner (before or during pregnancy) had higher levels of depressive symptoms compared to nonvictims. This pattern of findings suggests that psychological aggression perpetrated by intimate partners may be associated with mental health problems among nonpregnant women only when it occurs frequently; however, pregnant women’s psychological health may be more likely to be threatened by even low levels of psychological aggression by their intimate partners. Furthermore, any level of physical assault or sexual coercion may endanger women’s mental health, regardless of the women’s pregnancy status.

Given the high levels of violence in the lives of the study women, it is not surprising that many of these women suffered violence-inflicted injuries (43% were injured during the year before pregnancy and 27% were injured during pregnancy). Furthermore, women injured by their intimate partner evidenced higher levels of depressive symptoms.

More than half of the study women experienced multiple types of violence and injuries at the hands of their intimate partner, even during pregnancy. Examinations of these patterns of violence found that women’s levels of depressive symptoms tended to be higher among the groups of women who experienced multiple forms of violence.

The majority of violence victims, both before and during pregnancy, evidenced high levels of depressive symptoms and met the criteria for depression. However, even though the depressed women who were victimized often experienced more frequent violent victimization each month than did nondepressed women who were victimized, seldom were these differences in frequencies great enough to be statistically significant. This may be because of various reasons. For example, we may have had a limited amount of statistical power for this analysis; that is, we have fairly small sample sizes, so we may not have been able to detect differences of small magnitudes. Another possibility is that women experiencing similar frequencies of violent events may have been experiencing violence of different severities, some women being exposed to more severe violence (e.g., beatings) and others exposed to less severe violence (e.g., a slap).

These findings are best viewed in light of the methodological constraints of this study. One limitation is that this research was based solely on women's interview responses, which are prone to various forms of recall and response biases. This is particularly important because some of the women's reports focused on events and feelings that occurred a year before the interviews. We encourage future researchers in this area to employ longitudinal study designs that first assess women before pregnancy and follow them throughout pregnancy. Another concern is that reporting biases are especially likely given the sensitive nature of the topic under study (e.g., intimate partner violence). Therefore, this study could have benefited from additional information sources concerning partner violence, such as partners' reports of violence or police reports concerning domestic assaults. Another limitation of this research is that it is based on a convenience sample drawn from North Carolina prenatal care clinics that served predominately low-income women; therefore, these findings may not be generalizable to other groups of women. Finally, caution is urged in interpreting these findings because there is still much to learn concerning women's emotional responses to intimate partner violence. The depressive symptoms of the victimized women may be interpreted as meaning that the women have mental health problems or that the women are evidencing normal responses to abnormal events. Regardless of how one views this, it is likely that if the depression is left untreated, it will further adversely affect both the women's health and the well-being of the women's infants.

The results of this study may help to inform both research and practice concerning violence in the lives of women. The findings underscore the importance of providing routine screening for both violent victimization and depression within the context of women's health care and other types of services, including those provided to pregnant women. Although many health care organizations and agencies have endorsed such screening, it is clear that not all female patients have received such screening, even within the context of prenatal care provision (Clark et al., 2000). In addition, in light of the ties between such violence and depression among women, professionals who provide services to abused women (such as staff of domestic violence programs) should assure that their clients are assessed for depression and other mental health problems and that appropriate services are provided to those in need. Somewhat similarly, men-

tal health specialists should screen their female patients for violence and should offer identified violence victims suitable violence-related services. Likewise, emergency personnel who attend injured women should ask the women about violence in their lives and should refer abused women to appropriate victim services. For such screening and referral procedures to be successful, women's care providers need to be cross-trained concerning both mental health and violence issues.

This research takes us one step closer to understanding the impact of violence in the lives of pregnant women. Future researchers are encouraged to take a longitudinal approach to this topic and to examine how intimate partner violence may affect the health and well-being of the woman not only before and during pregnancy but also after the birth of the baby.

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