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# Pregnancy and Intimate Partner Violence in Canada: A Comparison of Victims Who Were and Were Not Abused during Pregnancy

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## Abstract

The purpose of this study was to examine risk factors, indicators of severity, and differences in post-violence health effects for victims who experienced intimate partner violence (IPV) during pregnancy compared to victims who experienced IPV outside the pregnancy period. Data were from Statistics Canada's 2009 General Social Survey. Among IPV victims, 10.5% experienced physical and/or sexual violence during pregnancy. Victims who had experienced violence during pregnancy were more likely than victims who were not abused during pregnancy to experience both less severe and more severe forms of violence. In fully adjusted models, younger age, separated or divorced marital status, as well as partners' patriarchal domination, destruction of property, and drinking were significant predictors of pregnancy violence. Measures indicative of more severe violence and of a number of adverse post-violence health effects were significantly elevated among victims who experienced pregnancy violence relative to victims who were not abused during pregnancy. Implications of these findings are discussed.

**Keywords:** pregnancy, intimate partner violence, risk factors, severity, health effects

Violence against women has been recognized as a global public health problem (World Health Organization 2010). Violence during pregnancy is of special concern due to the adverse effects on not only the mother but also the developing child. Violence during pregnancy has been associated with negative lifestyle behaviors (Bailey and Daugherty 2007; Silverman et al. 2006; Stewart and Cecutti 1993), compromised prenatal care (Cha and Masho 2014), and poor maternal physical and mental health (Almeida et al. 2013a; Chambliss 2008; Howard et al. 2013; Silverman et al. 2006), as well as a greater likelihood of complications during pregnancy and adverse birth outcomes (Alhusen et al. 2013b; Cokkinides et al. 1999; Covington et al. 2001; Janssen et al. 2003; Meuleners et al. 2011; Murphy et al. 2001; Silverman et al. 2006; Valladares et al. 2002). What differentiates pregnancy violence from violence experienced at other periods of a woman's life is the effects that it has on pregnancy outcome, which, in turn, has developmental consequences for the child after birth.

Violence during pregnancy has been associated with an increased risk of intrauterine growth restriction, premature labor and delivery, and low birth weight (Covington et al. 2001; El Kady et al. 2005; Janssen et al. 2003; Meuleners et al. 2011; Murphy et al. 2001; Silverman et al. 2006; Valladares et al. 2002), and these outcomes are associated with physical, cognitive, emotional, and behavioral problems among children after birth (Berk and Shanker 2006). Even in the absence of these adverse pregnancy outcomes, violence during pregnancy has been associated with postpartum infant health and developmental problems among prenatally exposed children (Burke et al. 2008; Huth-Bocks et al. 2002; McMahan et al. 2011). Women experiencing violence are also more likely to use tobacco, alcohol, and/or drugs during pregnancy compared to pregnant women not experiencing violence (Bailey and Daugherty 2007; Bullock et al. 2001; Janssen et al. 2003; McFarlane et al. 1995; Stewart and Cecutti 1993). These behavioral risk factors not only jeopardize the pregnant women's health status but also are known risk factors for poor pregnancy outcomes.

Violence during pregnancy is also a strong predictor of postpartum violence (Charles and Perreira 2007; Guo et al. 2004; Martin et al. 2004). Because intimate partner violence (IPV) and child abuse tend to co-occur, children may be at an elevated risk of experiencing violence themselves in the postpartum period (Chambliss 2008; Chan et al. 2011). Exposure to IPV can increase the risk of child developmental problems across multiple domains of functioning (Holt et al. 2008; Kitzmann et al. 2003). As a matter of fact, the American Academy of Pediatrics (1998) has urged pediatricians to routinely screen all women for IPV as an important component in the primary prevention of child abuse. In order to improve the health and well-being of pregnant women and their children, it is important to identify women most at risk of experiencing IPV during pregnancy. As well, a better understanding of the consequences of such violence is useful for developing more targeted prevention and intervention strategies aimed at eliminating and/or reducing violence against pregnant women and its negative sequelae.

### **Risk Factors for Violence during Pregnancy**

A number of sociodemographic risk factors have been associated with an increased risk of IPV during pregnancy. For example, young age (Cokkinides et al. 1999; Daoud et al. 2012; Saltzman et al. 2003; Stewart and Cecutti 1993), low income (Daoud et al. 2012; Heaman 2005), lower level of education (Charles and Perreira 2007; Cokkinides et al. 1999; Daoud et al. 2012; James et al. 2013; Saltzman et al. 2003; Stewart and Cecutti 1993), and unemployed status (Brownridge et al. 2011; Charles and Perreira 2007; Heaman 2005; Stewart and Cecutti 1993) have all been associated with an increased risk of violence during pregnancy. There is also some indication that unmarried women (i.e., either single or separated/divorced women) are at an increased risk of IPV during pregnancy compared to married and cohabitating women (Charles and Perreira 2007; Daoud et al. 2012; Decker et al. 2004; Heaman 2005; James et al. 2013; Saltzman et al. 2003; Stewart and Cecutti 1993).

One area that has not received much attention in extant research is whether living in a rural area has an impact on violence risk during pregnancy. Although some studies report that the prevalence of IPV among rural, pregnant women is similar to that of pregnant women living in urban areas (Brownridge et al. 2011; Bullock et al. 2001; Daoud et al. 2012), a study among low-income, rural Appalachian women reported that 80.8% of the pregnant women reported experiencing any type of IPV (psychological, physical, sexual, and/or injury) and 27.9% reported experiencing physical violence in their current pregnancies (Bailey and Daugherty 2007). Geographic location may be especially relevant to consider within the Canadian context given evidence that Aboriginal women have been found to be at a higher risk of experiencing pregnancy violence (Daoud et al. 2012; Heaman 2005; Janssen et al. 2003; Muhajarine and D'Arcy 1999; Stewart and Cecutti 1993), and many Aboriginal communities are located in isolated, rural areas in Canada.

A major limitation in the existing literature on IPV during pregnancy is that relatively little is known about the perpetrators of such violence (Taillieu and Brownridge 2010). In past research, partner jealousy, possessiveness, paternal uncertainty, and controlling behavior have emerged as important perpetrator characteristics associated with an increased risk of experiencing IPV during pregnancy (Bacchus et al. 2006; Burch and Gallup 2004; Campbell et al. 1999; Decker et al. 2004; Hellmuth et al. 2013; McFarlane et al. 1995). Financial control and socially isolating women from support networks are two potential mechanisms that abusive men may utilize to establish control over their pregnant partners (Bacchus et al. 2006). As a matter of fact, coercive control has been hypothesized to be a core component of abusive behavior (e.g., Johnson 1995). It could also be that symbolic acts of violence, such as damaging a partner's possessions or threatening to harm others close to the pregnant woman, are additional mechanisms through which coercive control is established. Yet, most of the research that has been conducted to date focuses on physical violence against a pregnant partner (Taillieu and Brownridge 2010), which may not adequately describe important relationship characteristics that could be used to identify male partners that are most likely to perpetrate violence against a pregnant partner. Finally, male partner substance abuse problems have also been associated with an increased risk of IPV during pregnancy (Charles and Perreira 2007; Hellmuth et al. 2013; McFarlane et al. 1995; Muhajarine and D'Arcy 1999).

Taken together, many of these personality dispositions (e.g., jealousy, possessiveness, substance abuse, controlling behavior) have been associated with abusive behavior in the general IPV literature (Delsol et al. 2003; Holtzworth-Munroe and Stuart 1994; Johnson 1995; Schumacher et al. 2001; Wilson et al. 1995) but have not been explicitly examined as factors that could potentially differentiate men who continue to perpetrate violence when their female partner becomes pregnant from men who desist from perpetrating such violence.

### **Indicators of the Severity of Violence against Pregnant Women**

There is some indication that victims of violence during pregnancy experience more frequent and more severe violence than women who only experience violence outside the pregnancy period (Brownridge et al. 2011; Burch and Gallup 2004; McFarlane et al. 1995, 2002; Stewart and Cecutti 1993; Taillieu and Brownridge 2010). Violence during pregnancy remains one of the leading causes of maternal death (Brown 2009; Cheng and Horon 2010). As well, among women reporting experiencing IPV both before and during pregnancy, between 21 and 71% report an increase in the frequency and/or severity of violence during pregnancy relative to IPV during the pre-pregnancy period (Taillieu and Brownridge 2010). These findings are also supported in research involving male perpetrators of violence. In a sample of convicted batterers, males with pregnant partners had significantly higher self-reported scores on violence frequency and severity than males without pregnant partners (Burch and Gallup 2004). Indeed, Campbell et al. (1993) found that the only significant difference between women abused during pregnancy and women abused exclusively outside the pregnancy period was that women abused during pregnancy reported more frequent and severe violence throughout the course of their entire relationship than women who were not abused during pregnancy.

### **Health Effects of Violence against Pregnant Women**

IPV is a leading cause of injury among reproductive-aged women (Chambliss 2008; Mendez-Figueroa et al. 2013), and approximately 10% of all hospitalizations for injury during pregnancy are a direct consequence of IPV (Chambliss 2008). Women experiencing IPV during pregnancy report decreased positive lifestyle behaviors (Bailey and Daugherty 2007; Silverman et al. 2006; Stewart and Cecutti 1993), poorer general health status (McMahon et al. 2011; Stenson et al. 2001), more gynecological problems (Audi et al. 2012), increased use of health services (Silverman et al. 2006), and decreased quality of life (Tiwari et al. 2008) relative to nonabused pregnant women. Violence during pregnancy has also been associated with poor mental health both during pregnancy (Almeida et al. 2013a; Chambliss 2008) and postpartum (Beydoun et al. 2010; Desmarais et al. 2014; Howard et al. 2013; Janssen et al. 2012), which can impair a mother's ability to parent effectively in the postpartum period (Casanueva and Martin 2007; Dayton et al. 2010; Malta et al. 2012) and compromise maternal-child bonding (Alhusen et al. 2013a; Almeida et al. 2013b; Huth-Bocks et al. 2004).

Women experiencing violence during pregnancy have been found to report significantly higher somatization, obsessive-compulsive, interpersonal sensitivity, hostility, depression, anxiety, paranoid ideation, psychoticism, and global severity scores during pregnancy than women who do not experience violence during pregnancy (Almeida et al. 2013a). Similarly, Desmarais et al. (2014) found that IPV both before and during pregnancy was associated with higher stress, depression, obsessive-compulsive, and post-traumatic stress scores in the postpartum period relative to a no-violence comparison group. The authors also noted differences in mental health outcomes based on the timing (before vs. during pregnancy) and the types of IPV (psychological, physical, or sexual), with physical violence specific to the pregnancy period having a particularly detrimental association with postpartum mental health. Finally, postpartum depression is one of the most common mental disorders associated with childbirth and is a significant health concern. Meta-analytic results indicate women experiencing violence during pregnancy have increased odds of both prenatal and postpartum depression compared to women without a history of such violence (Howard et al. 2013), and the relationship between IPV and postpartum depression seems most pronounced among women experiencing violence before, during, and after pregnancy (Janssen et al. 2012). Therefore, reported differences in mental health outcomes between women experiencing IPV during pregnancy relative to those who do not could be related to differences in IPV experiences across the entirety of the relationship. Less is known about the impact of pregnancy violence on other aspects of women's health and well-being, such as self-concept, daily functioning, and the extent to which physical injury and the need for medical attention might differ based on whether or not the violence was experienced at a time when the woman was pregnant.

### **The Current Study**

Research on pregnancy violence has remained relatively atheoretical to date (Taillieu and Brownridge 2010). Psychological perspectives on IPV may provide a useful framework for understanding IPV during pregnancy. Psychiatric disorders, cognitive distortions, deficits in emotional regulation, attachment disruptions, and early traumatic experiences have all been associated with IPV perpetration (King 2012). As well, research from the typological approach to the study of IPV suggests that different subtypes of abusive men exist (Chiffriller and Hennessy 2006; Delsol et al. 2003; Dixon and Browne 2003; Holtzworth-Munroe and Stuart 1994; Johnson 1995; Saunders 1992; Waltz et al. 2000). The different trajectories of violence during pregnancy, male personality dispositions associated with the perpetration of such violence, and research suggesting that women experiencing violence during pregnancy are subject to frequent and severe violence in their relationships all suggest the possibility that perpetrators of pregnancy violence represent a unique subtype of abusive partner.

In addition, most studies compare women experiencing violence during pregnancy to a no-violence comparison group of pregnant women (Chan et al. 2011). Although pregnancy has been found to represent a period of respite from violence for many women, for a substantial proportion IPV continues into the pregnancy period (Taillieu and Brownridge 2010). Differences between women who experience violence during pregnancy relative to

women who experience violence exclusively outside of pregnancy may help to delineate whether pregnancy violence is, in fact, a qualitatively different type of IPV experience for women. Therefore, the overall purpose of the current study was to examine differences in the risk for, and effects of, IPV among women who did and did not experience IPV during pregnancy using a nationally representative Canadian sample. The specific research objectives were to examine: (1) risk factors relevant to the understanding of violence against pregnant women, (2) indicators of the severity of violence against pregnant women, and (3) differences in post-violence health effects for victims who experience violence during pregnancy compared to women who are only victimized outside the pregnancy period.

## **Methods**

### *Sample and Data*

Data were from the 2009 General Social Survey on Victimization (GSS-2009) master file ( $N = 23,766$ ). The GSS-2009 targeted the population of noninstitutionalized persons 15 years and older living in the 10 Canadian provinces (Statistics Canada 2010). The survey employed a complex, multistage sampling design using random digit dialing telephone procedures based on the elimination on nonworking banks method. Households were randomly selected from provincial strata, and one person aged 15 years and older was randomly selected from each household. Interviews were conducted by a trained interviewer using computer-assisted telephone interviewing techniques. Households without a home telephone number (approximately 0.9% of the target population) or that rely on cellular service only (approximately 8% of the target population) were not captured by the GSS-2009 sampling procedure (Statistics Canada 2010). The response rate of the GSS-2009 was 61.6% (Statistics Canada 2010). It should be noted that virtually nothing is known about nonresponders; therefore, results likely are biased to the extent that these cases differ from respondents (Statistics Canada 2010).

The subsample used in the current study consisted of all heterosexual women who reported experiencing IPV from a current or former marital or cohabitating partner in the 5 years preceding the survey (weighted  $N = 534,838$ ). Of these women, 10.5% experienced violence during pregnancy and 89.5% experienced violence outside the pregnancy period only. This study defined IPV as physical threat, physical assault, and/or sexual assault (see measures section for more details) by a current or former marital or cohabitating partner. Women reporting having experienced IPV were then asked if the violence had happened at a time when they were pregnant.

### *Measures*

#### *IPV*

IPV was assessed with a 10-item modified version of the Conflict Tactics Scales (Straus 1979). Respondents were asked to report on victimization experiences in the 5 years preceding the survey. A woman was coded as having experienced IPV in the past 5 years if a current and/or previous marital or cohabitating partner: threatened to hit her with a fist or anything else that could have hurt her; threw anything at her that could have hurt her;

pushed, grabbed, or shoved her in a way that could have hurt her; slapped her; kicked, bit, or hit her with a fist; hit her with something (not including a fist) that could have hurt; beat her; choked her; used or threatened to use a gun or knife; or forced her into any unwanted sexual activity by threatening her, holding her down, or hurting her in some way. Respondents indicating that they had experienced any of the aforementioned items were then asked if any of the violent acts had occurred at a time when they were pregnant.

#### *Risk Factors*

Sociodemographic risk factors included respondent age (15 to 29 years, 30 to 39 years, and 40 years and older), respondent employment status (employed vs. unemployed at time of survey), current marital status (married/cohabitating, separated/divorced, or single/never-married), and region of residence based on the respondent's postal code (urban vs. rural). Urban areas were defined as areas with a minimum population concentration of 1,000 and a population density of at least 400 per square kilometer based on Census counts. All other territories outside an urban area were considered rural areas (Statistics Canada 2012). The GSS-2009 collected demographic information only on current marital or cohabitating partners; demographic information on previous marital or cohabitating partners was unavailable in the dataset. Because we were interested in violence perpetrated by both current and previous partners, we could not include demographic characteristics of the perpetrators in analyses.

However, a number of other perpetrator dispositions were available in the data, including jealousy, possessiveness, patriarchal domination, social isolation, damaged property or possessions, partner threatened to harm or actually harmed others, and partner ever drinking during the incident(s). All respondents with a current and/or previous marital or cohabitating partner were asked to report whether their partner(s) engaged in these behaviors. In the survey, information on current and previous partners was collected separately. Because we were interested in violence perpetrated by both current and previous partners, responses to each series of questions were combined for analyses (i.e., whether or not a given behavior was exhibited by a current and/or previous marital or cohabitating partner).

Partner jealousy was assessed with a question asking whether the respondent's partner was jealous and did not want her to talk to other men (yes/no). Partner possessiveness was assessed with a question asking whether the respondent's partner demanded to know who she was with and where she was at all times (yes/no). Partner patriarchal domination was assessed with a question asking whether the respondent's partner prevented her from knowing about or having access to the family income, even if she asked (yes/no). Social isolation was assessed with a question asking whether the respondent's partner tried to limit her contact with family or friends (yes/ no). Respondents were also asked whether their partner ever damaged or destroyed their property or possessions (yes/no), whether their partner ever harmed or threatened to harm others that were close to the respondent (yes/no), and whether their partner had ever been drinking during the violent incident(s) (yes/no).

*Post-Violence Indicators of Severity*

Respondents who indicated that they had experienced IPV from a current or previous marital or cohabitating partner in the 5 years preceding the survey were asked to report on several post-violence indicators. These indicators were related to their reactions to the violence experienced and the actions they took as a result of the violence. Indicators included whether they ever feared that their life was in danger (yes/no), whether the police ever found out about the violent incident(s) (yes/no), and whether they had ever contacted several sources of assistance as a result of the violence including a crisis line or crisis center (yes/no), a women's center (yes/no), victim services (yes/no), or a counselor or psychologist (yes/no) to help deal with the violence.

*Post-Violence Health Effects*

Respondents who indicated that they had experienced IPV from a current or previous marital or cohabitating partner in the 5 years preceding the survey were asked to report on several post-violence indicators related to the effects of the violence they experienced. Indicators included whether they were physically injured as a result of violence (yes/no), whether they required medical attention as a result of the violence (yes/no), whether the violence made them take time off from everyday activities (yes/no), and whether they stayed in bed most or all of the day as a result of the violence (yes/no).

Based on the concepts outlined by Ratner (1998), and consistent with other research examining IPV experiences among vulnerable groups of women in the Canadian context (see Brownridge 2009), two composite variables were also created as indicators of the mental health effects of violence: psychopathology (yes/no) and altered psyche (yes/no) as consequences of violence. According to Ratner (1998), psychopathology represents a psychologically, mentally, or behaviorally disordered state, whereas an altered psyche is conceptualized as changes to how a woman views and values herself, including her value in relation to others. Psychopathology (i.e., a woman's emotional and psychological responses to IPV) and an altered psyche have been found to represent two distinct, but related, post-violence health consequences of IPV among female victims (Ratner 1998). Women who reported being depressed or having anxiety attacks; fear; being afraid for their children; being more cautious or aware; having sleep problems; shock or disbelief; hurt or disappointment; and/or being upset, confused, or frustrated were coded as having psychopathology as a result of the violence. Women responding negatively to all the aforementioned items were coded as having no psychopathology as a result of the violence. Women who reported being ashamed or guilty, lowered self-esteem, having problems relating to men, and/or increased self-reliance were coded as having an altered psyche as a result of the violence. Women responding negatively to all the aforementioned items were coded as having no altered psyche as a result of the violence.

*Statistical Analyses*

Statistical weights were used in all analyses to ensure that the sample was representative of the Canadian population. To account for the complex sampling design of the GSS-2009, bootstrapping was applied in all analyses as a variance estimation technique. First, descriptive statistics using cross-tabulations were conducted to examine differences in the 5-

year prevalence of each specific type of violence between victims who experienced IPV during pregnancy compared to victims who did not experience IPV while pregnant. Logistic regression models were computed to examine the relationship between each individual type of violence (independent variable) and pregnancy violence status (dependent variable). Second, descriptive statistics using cross-tabulations and logistic regression models were computed to examine differences in risk factors for violence by whether IPV was experienced during pregnancy. These analyses were also used to identify candidates for inclusion in multivariate logistic regression models. Independent variables significant at  $p < .05$  in unadjusted logistic regression models were included in multivariate analyses. Third, direct multivariate logistic regression analyses were conducted to examine the differential impact of risk factors based on whether or not violence was experienced during pregnancy (i.e., all independent variables entered simultaneously). Finally, zero-order odds ratios were calculated in order to examine post-violence indicators of severity of violence and post-violence health effects of women experiencing violence during pregnancy relative to women experiencing violence outside the pregnancy period only. Results at  $p < .05$  were considered statistically significant.

## Results

Table 1 provides the 5-year prevalence of each type of violence by whether IPV was experienced during pregnancy. Women who reported experiencing IPV during pregnancy were significantly more likely to experience each individual type of violence than women who did not experience violence during pregnancy. As shown by the cross tabulations, women experiencing IPV during pregnancy were 1.4 times more likely to have been slapped, had something thrown at them, and/or hit with something other than a fist than victims who were not abused while pregnant. Differences were greatest on the more severe forms of IPV; women experiencing IPV during pregnancy were 1.6 times more likely to have been choked and/or sexually assaulted, 1.8 times more likely to have been beaten, and 2.4 times more likely to kicked, bit, or hit with a fist than nonpregnancy violence victims. Zero-order odds ratios indicated that each individual component of violence was associated with an increased risk of experiencing violence during pregnancy (Odds ratios [ORs] ranged from 1.56 to 3.46, all  $p < .001$ ).

**Table 1.** Five-year prevalence of each component of violence by whether violence was experienced during pregnancy

IPV pregnancy status	Physical threat	Physical assault							Sexual assault	
	Threaten	Push	Slap	Choke	Throw	Hit	Gun/ Knife	Kick		Beat
Pregnancy violence, %			35.5	22.0	60.3	29.6		43.0	22.8	19.1
No pregnancy violence, %			25.8	14.0	43.2	21.2		17.9	12.6	12.1
OR (95% CI)	Positive and significant	Positive and significant	1.58*** (1.39, 1.80)	2.02*** (1.76, 2.33)	1.72*** (1.48, 2.01)	1.56*** (1.35, 1.81)	Positive and significant	3.46*** (3.03, 3.95)	2.04*** (1.75, 2.38)	1.72*** (1.45, 2.05)

Percentages based on weighted *N*. Blank categories indicate cross-tabulations that were not released by Statistics Canada to ensure respondent confidentiality (only direction of OR coefficient and statistical significance were released).

OR = odds ratio, CI = confidence interval

\**p* ≤ .05, \*\**p* ≤ .01, \*\*\**p* ≤ .001

Descriptive analyses examining risk factors indicated the respondent’s younger age, unemployment, and rural location were associated with an increased risk of experiencing violence during pregnancy (see Table 2). Women reporting IPV during pregnancy were less likely to be currently married or cohabitating than women experiencing IPV outside the pregnancy period only. Women experiencing IPV during pregnancy were also more likely to report that a current and/or previous marital or cohabitating partner was jealous, possessive, engaged in patriarchal domination, attempted to socially isolate her from family and friends, damaged property and possessions, threatened or harmed others, and was ever drinking during the incident(s) (ORs ranged from 1.30 to 2.39, all *p* < .001) than women abused outside the pregnancy period only.

Results from the multivariate logistic regression analyses are also provided in Table 2. As shown, younger age was associated with an increased risk of violence during pregnancy. Women who were currently separated or divorced had 30% higher odds of experiencing IPV during pregnancy than women who did not experience violence during pregnancy. Partner patriarchal domination, damaging property and possessions, and ever drinking during the incident(s) were associated with increased odds of experiencing IPV during pregnancy (Adjusted odds ratios [AORs] ranged from 1.45 to 2.00, all *p*-value < .001). Women experiencing violence during pregnancy had 32% lower odds of having a current and/or previous marital or cohabitating partner who threatened or harmed others compared to women who did not experience violence during pregnancy.

**Table 2.** Risk factors by whether or not violence was experienced during pregnancy

Risk factor	Pregnancy violence, %	No pregnancy violence, %	OR (95% CI)	AOR (95% CI)
Respondent's age				
15–29	29.7	17.0	3.42 (2.85, 4.11)***	4.35 (3.58, 5.30)***
30–39	42.4	28.1	2.97 (2.51, 3.51)***	4.13 (3.43, 4.97)***
40 and older	27.9	54.9	1.00	1.00
Respondent's employment				
Unemployed	24.2	20.2	1.26 (1.06, 1.50)**	1.13 (0.96, 1.35)
Employed	75.8	79.8	1.00	1.00
Current marital status				
Single (never married)	19.5	17.1	1.30 (1.07, 1.57)**	0.80 (0.65, 0.98)*
Separated/divorced	30.9	26.3	1.34 (1.15, 1.55)***	1.30 (1.10, 1.55)**
Married/cohabitating	49.6	56.5	1.00	1.00
Rural/urban location				
Rural	23.2	19.8	1.23 (1.05, 1.43)*	1.01 (0.87, 1.17)
Urban	76.8	80.2	1.00	1.00
Partner jealousy				
Yes	56.3	41.7	1.80 (1.56, 2.08)***	1.06 (0.84, 1.35)
No	43.7	58.3	1.00	1.00
Partner possessiveness				
Yes	50.9	38.9	1.63 (1.43, 1.87)***	1.02 (0.81, 1.28)
No	49.1	61.2	1.00	1.00
Partner patriarchal dominance				
Yes	34.4	24.8	1.59 (1.38, 1.83)***	1.45 (1.21, 1.74)***
No	65.6	75.2	1.00	1.00
Social isolation				
Yes	45.1	35.6	1.49 (1.29, 1.71)***	1.15 (0.96, 1.38)
No	54.9	64.4	1.00	1.00
Damages property/possessions				
Yes	58.2	36.8	2.39 (2.08, 2.75)***	2.00 (1.70, 2.36)***
No	41.9	63.2	1.00	1.00
Threatens to harm/harms others				
Yes	30.3	25.1	1.30 (1.13, 1.50)***	0.68 (0.57, 0.81)***
No	69.7	75.0	1.00	1.00
Partner ever drinking during incident(s)				
Yes	46.8	35.7	1.58 (1.39, 1.80)***	1.46 (1.27, 1.67)***
No	53.2	64.3	1.00	1.00

OR = odds ratio, AOR = adjusted odds ratio (i.e., all independent variables entered into the model simultaneously); CI = confidence interval

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

Results from logistic regression analyses examining post-violence indicators of severity and post-violence health effects are provided in Tables 3 and 4, respectively. As shown in

Table 3, women reporting IPV during pregnancy evidenced elevated odds of several indicators related to the severity of violence relative to women not reporting IPV during pregnancy. Women reporting IPV during pregnancy had nearly a 3-fold increase in the odds of reporting that they feared their life was in danger and nearly 4-fold increase in the odds of reporting that the police found out about the violence than women experiencing IPV outside the pregnancy period only. Victims who experienced IPV during pregnancy also had significantly higher odds of contacting several sources of assistance (i.e., crisis lines or crisis centers, women’s centers, victim services, and a counselor or psychologist) than victims not experiencing IPV during pregnancy (ORs ranged from 2.79 to 3.78, all  $p < .001$ ). Similarly, those who experienced IPV during pregnancy evidenced significantly higher odds of several post-violence negative health effects as a consequence of violence relative to victims who experienced IPV outside the pregnancy period. Victims reporting IPV during pregnancy had significantly higher odds of reporting physical injury, requiring medical attention, evidencing post-violence psychopathology and an altered psyche, to have had to take time off from everyday activities, and to have stayed in bed most or all of the day as a result of the violence (ORs ranged from 1.28 to 2.64, all  $p < .001$ ) than victims not abused during pregnancy.

**Table 3.** Zero-order odds ratio for post-violence indicators of severity

Dependent variable	Pregnancy violence/No pregnancy violence <sup>a</sup>	
	OR	95% CI
Feared life was in danger	2.91***	2.53, 3.35
Contacted crisis line/crisis center	2.94***	2.50, 3.45
Contacted women’s center	2.79***	2.31, 3.38
Contacted victim’s services	3.67***	3.12, 4.32
Contacted counselor/psychologist	3.78***	3.27, 4.37
Police found out about the incident(s)	3.93***	3.42, 4.52

OR = odds ratio, CI = confidence interval

a. No pregnancy violence is the reference category with an odds of 1.00

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

**Table 4.** Zero-order odds ratio for post-violence health effects

Dependent variable	Pregnancy violence/No pregnancy violence <sup>a</sup>	
	OR	95% CI
Physical injury	2.64***	2.29, 3.05
Received medical attention	1.57***	1.31, 1.88
Psychopathology <sup>b</sup>	1.28***	1.10, 1.48
Altered psyche <sup>c</sup>	1.63***	1.40, 1.90
Time off everyday activities	2.36***	2.05, 2.71
Stay in bed all/most of the day	1.90***	1.63, 2.21

OR = odds ratio, CI = confidence interval

a. No pregnancy violence is the reference category with an odds of 1.00

b. Includes depression or anxiety attacks; fear; afraid for children; more cautious or aware; sleep problems; shock or disbelief; hurt or disappointment; and upset, confused, or frustrated.

c. Includes ashamed or guilty; lowered self-esteem; problems relating to men; and increased self-reliance.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

## Discussion

In this study, 1 in 10 female victims of IPV reported experiencing violence during pregnancy. These findings are remarkably similar to findings from other studies using different nationally representative Canadian datasets to examine the prevalence of pregnancy violence among Canadian women (Brownridge et al. 2011; Daoud et al. 2012). Findings from the current study also indicated that women experiencing violence during pregnancy were more likely to experience each type of violence, to report indicators suggestive of more severe violence over the course of their relationships, and have elevated levels of adverse post-violence health effects relative to victims who were not abused during pregnancy. This is consistent with extant research suggesting that women who are abused during pregnancy are more likely to experience more severe violence than women who are abused exclusively outside the pregnancy period (Brownridge et al. 2011; Burch and Gallup 2004; Campbell et al. 1993; McFarlane et al. 2002; Stewart and Cecutti 1993; Taillieu and Brownridge 2010). These findings also support the body of research suggesting that pregnancy violence can have a substantial, negative impact on women's physical and mental health (Almeida et al. 2013a; Beydoun et al. 2010; Chambliss 2008; Desmarais et al. 2014; Howard et al. 2013; Janssen et al. 2012; McMahon et al. 2011; Silverman et al. 2006; Stenson et al. 2001). Taken together, evidence suggests that reducing and/or eliminating violence against pregnant women remains an important public health concern.

Many of the sociodemographic risk factors associated with violence during pregnancy (e.g., young age, separated/divorced marital status, unemployment) parallel those found to be associated with an increased risk of violence against women more generally (Capaldi et al. 2012; Schumacher et al. 2001). Socioeconomic disadvantage is known to have a negative impact on health status overall (Roos et al. 2006), and has also been linked more specifically to adverse pregnancy outcomes (Kramer et al. 2000). Therefore, programs and policies aimed at reducing socioeconomic disadvantage may be successful in not only improving the overall health status of pregnant women and their children but also have the added benefit of reducing violence against women.

In this study, younger age and separated or divorced marital status emerged as the only sociodemographic indicators associated with an increased risk of violence during pregnancy in fully adjusted models. Research has suggested that adolescents tend to report a higher prevalence of violence during pregnancy than adult women (Berenson et al. 1992; Parker et al. 1994; Saltzman et al. 2003). Adolescents are also more likely to experience violence from multiple perpetrators (e.g., parents and partners) than adult women during pregnancy (Berenson et al. 1992). There is also some indication that adult women experience more severe physical and emotional types of violence during pregnancy than adolescents (Parker et al. 1994). The relationship between young age and pregnancy violence could also be spurious because young women are more likely to be pregnant and are also at the highest risk for violence (Gelles 1988). More in-depth research examining violence experiences among both adolescent and adult women may help clarify the relationship between age and pregnancy violence. Nonetheless, programs targeting young at-risk mothers may be useful for both improving pregnancy outcomes and reducing violence risk in this specific population.

Substantial evidence has documented the elevated risk for violence post-separation among women (Brownridge 2006; Brownridge et al. 2008; Capaldi et al. 2012; Decker et al. 2004; Saltzman et al. 2003). As well, research has shown that, of women experiencing IPV in the year before pregnancy, those at the highest risk for femicide are more likely to leave their partners during pregnancy than women with lower danger assessment scores (Decker et al. 2004). Specifically, women who had left their abusive partners during pregnancy had partners who were more violently jealous, drunk every day, increased their frequency of violence, and/or threatened to kill them than women who remained with abusive partners during pregnancy (Decker et al. 2004). These findings lend support to the proposition that it could be a specific subtype of male perpetrator that continues to be violent toward a pregnant partner. Relatively little is known about what motivates a pregnant woman to leave an abusive partner, how pregnancy and separation are perceived by the abusive partner, or how the patterns of IPV might change during pregnancy and post-separation. Future research using in-depth, descriptive data may be useful for addressing these research questions. Pregnant women experiencing IPV need to be made aware of the risk of post-separation violence and, in the event of separation, need to be referred to effective support services designed to increase the safety of women post-separation (Brownridge 2006). Even relatively brief intervention programs for high-risk pregnant women experiencing abuse (i.e., 30-minute sessions on types of IPV, the cycle of abuse, preventive options, danger assessment, and safety planning 4 to 8 times over the course of routine prenatal care) have been shown to significantly reduce IPV and improve pregnancy outcomes (Kiely et al. 2010).

What this study adds to the pregnancy violence literature is some preliminary evidence that may be useful in identifying abusive men who are more likely to continue to be violent when their partners become pregnant. These findings can be used to guide theoretical work on pregnancy violence. In this study, the specific perpetrator personality dispositions (i.e., patriarchal dominance, heavy drinking, and the use of symbolic acts of violence) and indicators suggestive of a more severely violent relationship overall (e.g., fearing for life, contacting services, police involvement, more adverse post-violence health effects) and have also been identified in the battering typologies literature as important distinguishing features of specific subtypes of abusive men. To date, relatively little is known about the perpetrators of pregnancy violence (Taillieu and Brownridge 2010), and identifying the specific perpetrator characteristics associated with pregnancy violence remains an important research priority. As well, evidence that virtually all pregnant women come into contact with health care providers at some point during their pregnancies (Public Health Agency of Canada 2008) seems to suggest that the health care system may have an integral role to play in efforts to address violence against pregnant women. For example, it may be useful for health care providers to inquire about relationship characteristics during prenatal care visits. Health care providers could then target for violence prevention those pregnant women who are partnered with men who are possessive, controlling, and/or who use more indirect forms of violence (e.g., damages property or possessions), or who separate from their partners during pregnancy during prenatal care visits.

Victims reporting pregnancy violence had higher odds of also reporting negative health effects as a consequence of the violence compared to victims reporting that violence occurred exclusively outside the pregnancy period. Although physical manifestations of IPV among pregnant women can be obvious (e.g., physical injury), women often present to health care providers with more subtle manifestations similar to those reported here (e.g., increased need for medical attention, mental health problems, somatic complaints, impaired daily functioning) that are more difficult to diagnose (American Medical Association 1992). For example, Chamberlain and Perham-Hester (2000) found that the majority of physicians (85.7%) often/always screened for IPV when female patients presented with an injury, but less than 10% routinely screened for IPV at initial or annual exams. This type of targeted screening may miss a substantial proportion of victims who present with less obvious symptoms. Increasing awareness of the nonphysical signs and symptoms of IPV among health care providers may help them better identify and intervene with pregnant women experiencing violence.

In this study, victims who experienced violence during pregnancy were more likely to contact a number of services to deal with the IPV and to have the police find out about the violence than victims who were not abused during pregnancy. It is plausible that more severe violence is more likely to come to the attention of official agencies than less severe violence. It could also be that the increased help-seeking among victims experiencing violence during pregnancy reported in this study is related to a pregnant woman's recognition that their unborn child is also at risk, both prenatally and in the postpartum period. Nonetheless, increased contact with formal and informal services suggests other important potential points of intervention with women experiencing violence during pregnancy. To date, there is insufficient evidence regarding the effectiveness of interventions aimed at preventing and/or reducing IPV during pregnancy and its associated negative sequelae (Jahanfar et al. 2013). Therefore, the development, implementation, and evaluation of programs to reduce violence against pregnant women is an important research priority.

### **Limitations**

The findings from this research need to be viewed in light of a number of limitations. First, the data were cross-sectional, which precludes making inferences about causality. As well, the data were collected retrospectively, which introduces the possibility of recall and reporting bias. The fact that data were collected only from households with landline phones may have also biased results, as it may have precluded younger participants who exclusively use cellular phone services. Second, only respondents with current and/or previous marital or cohabitating partners were asked to report on IPV victimization experiences; therefore, IPV that occurs in other intimate relationships, such as dating relationships, were not captured in the GSS-2009 data. It should also be noted that there was no way to determine whether women in the comparison group of victims who did not experience violence during pregnancy were ever pregnant. Therefore, the prevalence of pregnancy violence is likely underestimated in this study because of the exclusion of noncohabitating intimate relationships and the inclusion of women in the denominator that had never been pregnant. Third, although women who reported experiencing IPV during pregnancy were

more likely to report experiencing each type of violence, it could not be determined, with the available data, which specific types occurred during pregnancy. As well, qualitative expressions of IPV and its effects on pregnant and nonpregnant women were not collected in the data. In-depth, descriptive data could highlight the differences in the way IPV is experienced by pregnant and nonpregnant women. Fourth, analyses were limited to the variables available in the data set and several important concepts were measured with single-item indicators. Finally, information on pregnancy-specific factors (e.g., prenatal care access, pregnancy intention, and pregnancy termination) that have been associated with experiencing violence during pregnancy were not available in the data.

## Conclusion

Research has shown that repeated screening for IPV throughout pregnancy facilitates identification and disclosure among women experiencing violence during pregnancy (Coker et al. 2012; Kiely et al. 2013). In addition, a number of key health organizations have advocated for the universal screening of all women for IPV during pregnancy (American College of Nurse-Midwives 2003; American College of Obstetricians and Gynecologists 2012; American Medical Association 1992; United States Preventive Services Task Force 2013). Despite these recommendations, universal screening for IPV during pregnancy has not been widely implemented in practice (Bailey 2010; Chamberlain and Perham-Hester 2000; Clark et al. 2000). Given evidence that women who have experienced violence during pregnancy may be involved in more severely violent relationships, and evidence more pronounced negative health effects as a result, than women experiencing violence exclusively outside the pregnancy period, it is evident that frequent and universal screening of pregnant women for IPV is warranted.

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