

# Intimate partner violence and suicidal ideation in pregnant women

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**Abstract** Intimate partner violence (IPV) during pregnancy is a major public health issue with significant implications for maternal mental health. Less studied is the association between IPV during pregnancy and suicidal ideation. This study reports the prevalence and correlates of suicidal ideation among low-income pregnant women receiving prenatal care at a university obstetrical clinic from February 2009 to March 2010. We performed a cross-sectional analysis of 166 women surveyed between 24 and 28 weeks of gestation using the Edinburgh Postnatal Depression Scale (EPDS) and the Abuse Assessment Screen (AAS). Multiple logistic regression identified factors associated with antenatal suicidal ideation. The prevalence of suicidal ideation was 22.89 %. In the fully adjusted model, antenatal depressive symptomatology (OR = 17.04; 95 % CI 2.10–38.27) and experiencing IPV (OR = 9.37; 95 % CI 3.41–25.75) were significantly associated with an increased risk of antenatal suicidal ideation. The prevalence of antenatal suicidal ideation in the current study was higher than other population-based samples though this sample was predominantly single, low-income, and 19 % experienced IPV during pregnancy. Given the strong association of antenatal suicidal ideation, depressive symptomatology, and IPV, health care providers are urged to identify those women at risk so that antenatal care can be tailored to best support optimal maternal and neonatal outcomes.

**Keywords** Intimate partner violence · Antenatal depression · Suicidal ideation

## Introduction

Suicidality during the perinatal period represents a significant public health issue as it is a leading cause of maternal mortality in the USA (Chang et al. 2005; Palladino et al. 2011). Suicidal ideation or suicidal thoughts are significant predictors of suicide attempts and completions making suicidal ideation an important issue to address when revealed during pregnancy (Moller 2003).

During pregnancy, rates of suicidal ideation range between 5 and 14 %, assessed primarily through question 10 of the Edinburgh Postnatal Depression Scale (EPDS) with rates up to 46 % in high-risk samples (e.g., psychiatric, substance-dependent) (Birndorf et al. 2001; Copersino et al. 2008; Lindahl et al. 2005; Newport et al. 2007). Few population-based studies have examined the prevalence of suicidal ideation or suicide attempts during pregnancy. Greenblatt et al. (1997) examined hospital discharge records over an 11-year period and found pregnant women to have half the rate of hospitalizations for suicide attempts compared to age-matched nonpregnant controls, but concluded that rates of intentional injury were likely underestimated due to lack of universal electronic coding. The Avon Longitudinal Study of Parents and Children examined reports of suicidal ideation in over 12,000 middle- to upper-class women finding at 18-week gestation, 10.2 % of the sample endorsed “some” thoughts of self-harm (Evans et al. 2001; O’Connor et al. 2002). While some research supports that women are at reduced risk for suicide during pregnancy, research has found suicidal ideation to be elevated in unplanned pregnancies as well as during depressive episodes (Gavin et al. 2011; Kessler et al. 2005; Lindahl et al. 2005). Further, a recent study conducted among a large community-based economically and racially diverse sample of pregnant women noted the prevalence of suicidal ideation to be similar to rates reported in nationally representative nonpregnant samples, suggesting that pregnancy is not protective against suicidal ideation (Gavin et al. 2011).

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There are a number of risk factors for suicidal ideation during the antenatal period including depression and other mental disorders and perceived stress (Gavin et al. 2011; Huang et al. 2012). Huang et al. (2012) examined suicidal ideation among pregnant women in Brazil, finding single relationship status, history of previous psychiatric treatment, and smoking all associated with higher odds of suicidal ideation. In a small sample of nonpregnant intimate partner violence (IPV) survivors residing in a shelter, reports of intimate partner rape were associated with suicidal ideation though this relation was mediated by depression and posttraumatic stress disorder (Weaver et al. 2007). In an Italian nonclinical sample of perinatal women, unemployment, low educational level, lifetime suicidality, previous suicide attempts, and major depression during pregnancy were significantly associated with suicidality during pregnancy (Mauri et al. 2012).

Less studied is the association between IPV and suicide ideation. IPV during pregnancy is a significant health issue with negative sequelae for women and children (Alhusen et al 2014; Martin et al. 2001; Shah and Shah 2010; Silverman et al. 2006). Extant research has found that between 3 and 9 % of women experience IPV during pregnancy though well-established risk factors including young age, single relationship status, minority race/ethnicity, and poverty place a woman at higher risk (Tjaden and Thoennes 2000; Vest et al. 2002). Indeed, studies among low-income, single women have noted the prevalence of IPV as high as 50 % (Alhusen et al. 2013; Bailey and Daugherty 2007). The association between IPV and depression, both during pregnancy and the postpartum period, is well-established (Agrawal et al. 2014; Connelly et al. 2013; Kiely et al. 2013). Importantly, 54.3 % of pregnancy-associated suicides involved intimate partner conflict attributable to the suicide (Palladino et al. 2011). However, the association between IPV and suicidal ideation during pregnancy is under-researched. Gavin et al. (2011) examined correlates of suicidal ideation during pregnancy in a large community-based sample and did not find past-year IPV or current IPV to be significantly associated with suicidal ideation in multivariate modeling though the prevalence of IPV was low (3.2 %).

An enhanced understanding of the association between IPV and suicidal ideation during pregnancy is particularly salient as suicidal ideation confers additional risks in the antenatal period given the potential for harm to the fetus. Accordingly, the current study examined IPV in addition to other risk factors for suicidal ideation during pregnancy. Pregnancy presents an ideal time to assess and intervene in suicidal ideation, as for many women, pregnancy is the only time they obtain regular care within the health care system (McFarlane et al. 2006).

Thus, the objectives of the present study were to (1) examine the prevalence of suicidal ideation and comorbid depressive symptomatology during pregnancy and (2) identify the risk factors for suicidal ideation during pregnancy in a low-income, predominantly African American sample of pregnant women.

## Materials and methods

A convenience sample of pregnant women was recruited from three urban obstetrical clinics in the Mid-Atlantic region. Each of the clinics served a predominantly low income (>95 % Medicaid eligible), African American (>95 %) urban population, and the clinics were all affiliated with a major university health care system. Eligibility criteria included pregnant women who were 16 years or older, between 24 and 28 weeks of gestation at the time of data collection, and able to speak English. Of the 174 eligible pregnant women approached to participate, 166 (96 %) women receiving prenatal care from one of the three participating clinics completed study instruments resulting in a 95.4 % participation rate.

The study protocol and informed consent received institutional review board approval from the Johns Hopkins Medical Institutions. Eligible participants were approached about enrollment in the study during their prenatal care visits.

After a complete description of the study, informed consent was obtained and participants were interviewed in a private space at each of the three study clinic sites. Interviews lasted approximately 30 minutes. The interviews were conducted by the first author or one of two undergraduate nursing students who received research compliance and study procedures training. Participants were compensated \$15 for their participation.

## Measures

The EPDS, a widely used self-report measure to assess for depressive symptoms, particularly during the perinatal period, was used to assess depressive symptomatology (Cox et al. 1987). The EPDS is brief and focuses less on somatic symptoms, making it particularly valuable during pregnancy (Cox et al. 1987; Ryan et al. 2005). The scale consists of ten items and asks women to respond to each statement based on their mood over the previous 7 days. A higher EPDS score represents an increased risk of depressive symptomatology, and this study used the widely recommended cutoff score of >12 as indicative of clinically significant depressive symptoms. A sensitivity rate of 82 % with a specificity of 95 % has been previously demonstrated with this chosen cutoff in a similar participant population (Tandon et al. 2012). Examples of items from the EPDS include “I have looked forward with enjoyment to things” and “I have blamed myself unnecessarily when things went wrong.” The Cronbach’s  $\alpha$  for the current study was 0.91. “Suicidal ideation” was defined as an answer of “sometimes” or “yes, quite often” to question 10 of the EPDS, “the thought of harming myself has occurred to me.” “Hardly ever” or “never” were defined as “no suicidal ideation,” consistent with other studies definition using the EPDS (Howard et al. 2011).

The Abuse Assessment Screen (AAS) was used to assess IPV during pregnancy (McFarlane et al. 1992). Participants answered each of the five items and those responding “yes” to

the question specifically asking about abuse “since you’ve been pregnant” were considered positive for IPV during the current pregnancy.

A measure of demographic data was developed for use in the current study and included age, race, marital status, educational history, and income status. Self-reported race/ethnicity in this study was categorized as follows: Black, non-Hispanic white, Latina, Asian, American Indian, Pacific Islander, and multi-racial. Marital status was analyzed as a binary variable with “those women who stated they were single, separated, divorced or not living with partner categorized as “single,” and those women who stated they were married or living with a partner categorized as “partnered.” Self-reported data on highest level of education was collected and analyzed as a binary variable (<12 years of formal education vs ≥12 years of formal education). Participants’ self-reported income status was analyzed as a binary variable (total family income <\$10,000 per year vs ≥\$10,000 per year) which was the median income for this sample.

#### Data analysis

All statistical analyses were performed using Stata 11 (StataCorp, College Station, TX). Data analysis began with descriptive and exploratory statistical analyses. Study variables were examined to assess distributions, to identify outlying or extreme observations, and to determine the need for transformation. There were no missing data for the sample. Chi-squared and *t* tests were used to test the bivariate associations between sociodemographic characteristics, depressive symptomatology, abuse during pregnancy, and the outcome variable of suicidal ideation during the perinatal period. A series of separate models were conducted and included variables that had *p* values of less than 0.15 in bivariate analyses or were deemed theoretically relevant based on previous literature. Odds ratios (OR) and 95 % confidence intervals (95 %

CI) were obtained for individual associations between each covariate and suicidal ideation during the antenatal period. Final models were selected for best fit based on their Akaike information criterion values.

#### Results

The sociodemographic characteristics of the study sample are outlined in Table 1. The majority of women (93 %) self-identified as black. The mean age was 23.3 years (5.4 SD). Two thirds (66 %) of the participants received less than a high school diploma or equivalent, and 76 women (46 %) reported total family income of less than \$10,000/year.

With regard to depressive symptomatology, 41 % of participants scored >12 on the EPDS. Nearly 20 % of participants reported experiencing abuse during their current pregnancies. Overall, 22.89 % (*n*=38) of participants reported suicidal ideation during the current pregnancy. Among those women with a positive response to suicidal ideation, 86 % (*n*=33) reported thoughts of suicidal ideation “sometimes” in the last week, and 14 % (*n*=5) reported thoughts of suicidal ideation “quite often.” Importantly, among those women screening positive for suicidal ideation, 97.3 % had EPDS scores >12.

Women who screened positive for suicidal ideation were more likely to report less than 12 years of formal education, less than \$10,000/year total income, living without a partner or spouse, experiencing IPV, and depressive symptomatology >12 on the EPDS. There were no significant differences in suicidal ideation by race though the sample was predominantly black.

Table 2 shows the risk factors for suicidal ideation in this sample of pregnant women. Model 1 included only clinically significant depressive symptomatology given its well-established comorbidity with suicidal ideation (OR 40.64; 95 % CI 5.41–65.23). After adjusting for important sociodemographic predictors (e.g., marital status, education, race,

**Table 1** Sociodemographic characteristics of women with and without suicide ideation

Characteristic	Total ( <i>N</i> =166)	Antenatal suicide ideation ( <i>n</i> =38)	No antenatal suicide ideation ( <i>n</i> =128)	<i>t</i> Test/chi-squared/ <i>p</i> value
Race, % ( <i>n</i> )				
Black	93.4 (155)	92.10 (35)	93.75 (120)	0.592
Non-Hispanic white	10 (6)	7.89 (3)	5.47 (7)	
Latina	.6 (1)	0 (0)	0.78 (1)	
Age, mean (SD) (years)	23.31 (5.4)	22.84 (5.2)	23.72 (5.5)	0.648
Education (<12 years), % ( <i>n</i> )	66.3 (110)	84.21 (32)	60.94 (78)	0.008
Single, % ( <i>n</i> )	54.2 (90)	71.05 (27)	49.21 (63)	0.018
Income <\$10,000/year, % ( <i>n</i> )	45.8 (76)	63.2 (48)	36.8 (28)	<0.001
IPV during pregnancy	19.3 (32)	60.52 (23)	7.03 (9)	<0.001
EPDS >12, % ( <i>n</i> )	41 (68)	97.3 (37)	0.80 (1)	<0.001

EPDS Edinburgh Postnatal Depression Scale, IPV intimate partner violence

**Table 2** Multivariate logistic regression of antenatal risk factors for suicide ideation

Risk factor	Model 1	Model 2	Model 3
EPDS >12	40.64 (5.41–65.23)	32.64 (4.41–60.69)	17.04 (2.10–38.27)
Single		0.49 (0.21–1.18)	0.65 (0.24–1.72)
Less than 12 years of education		0.81 (0.26–2.51)	0.70 (0.20–2.50)
Non-Hispanic black		1.08 (0.23–5.08)	1.26 (0.22–7.21)
Income <\$10,000/year		0.53 (0.22–1.30)	0.77 (0.28–2.11)
IPV during pregnancy			9.37 (3.41–25.75)

EPDS Edinburgh Postnatal Depression Scale, IPV intimate partner violence

income), clinically significant depressive symptomatology remained a significant predictor of suicidal ideation (OR 32.64; 95 % CI 4.41–60.69) as demonstrated in model 2. Model 3 included the basic model, sociodemographic predictors, and IPV during the current pregnancy. Again, clinically significant depressive symptomatology remained a significant predictor of suicidal ideation (OR 17.04; OR 2.10–38.27). Importantly, IPV was also a significant predictor of suicidal ideation; experiencing IPV was associated with over nine times increased odds for suicidal ideation (OR 9.37; OR 3.41–25.75).

## Discussion

In this low-income, urban sample of pregnant women, nearly one in four women expressed thoughts of suicidal ideation within the past week. This prevalence is higher than the majority of research conducted among national samples including the National Comorbidity Study Replication (NCS-R), which found that 3.0 % of female respondents reported suicidal ideation in the past 12 months though pregnancy was not examined (Borges et al. 2006). In a large community-based pregnant sample, Gavin et al. (2011) reported the prevalence of suicidal ideation was 2.7 %. However, the prevalence in the current study is consistent with other studies conducted among high-risk samples. In a Canadian sample, the prevalence of suicidal ideation was significantly higher (i.e., 23.5 %) among aboriginal women, a group known to experience greater social inequities (Bowen et al. 2009). Similarly, in a large sample of women enrolled in family assistance programs in Colorado, the prevalence of suicidal ideation increased with the number of reported adversities. In women reporting four or more adversities (e.g., poor or fair emotional health or physical health, current or former substance use, history of arrest), nearly 27 % of them reported suicidal ideation within the past 12 months (Stallones et al. 2007). A central finding of this study was the independent risk that IPV during pregnancy confers on an increased risk of suicidal ideation, after controlling for depressive symptomatology. A significant body of research supports the association of IPV and perinatal mood disorders, yet research on the association between IPV and suicidal ideation is limited, particularly in the

perinatal period. Studies have found associations between IPV and suicidal ideation (Weaver et al. 2007) and suicide attempts (Wingood et al. 2000) among women living in shelters, though pregnancy status was not examined. Limited research has examined the association between different types of IPV and suicidal ideation finding women reporting both physical and psychological violence to be at higher risk for suicidal ideation than those women reporting psychological violence only (Pico-Alfonso et al. 2006).

The current study has several limitations that warrant consideration. First, a single item from the EPDS was used to classify participants as positive or negative for suicidal ideation. Using one item to assess suicidal ideation may not have captured other important aspects of suicidal ideation (Lindahl et al. 2005). Further, elevated scores on the EPDS are interpreted as clinically significant depressive symptoms but are not diagnostic of a major depressive episode. Second, this study was cross-sectional limiting our ability to infer causality. Third, data on prior mental health diagnoses and current treatment for mental health disorders (e.g., pharmacotherapy, psychotherapy) was not available. Finally, the sample was homogenous, limiting the generalizability of our results to other samples of pregnant women or other clinical settings.

## Clinical implications

Mental health screening is an important component of a comprehensive perinatal health assessment. Given the adverse consequences of undiagnosed or misdiagnosed perinatal depression, the importance of screening for suicidality during the perinatal period is vital. Providers who care for women during the time of pregnancy are in a unique position to identify and coordinate treatment for common mental health and safety issues such as depression, suicidal ideation, and exposure to IPV. For many women, particularly low-income women, pregnancy is the only time they access regular health care offering an opportune time to address the myriad risk factors for poor mental health (McFarlane et al. 2006). The US Department of Health and Human Services has endorsed the Institute of Medicine's recommendation to incorporate IPV screening and treatment as part of routine women's health visits (Institute of Medicine 2011).



Despite multiple organizations endorsing mental health screening, inclusive of IPV, evidence suggests that health care providers screen at relatively low rates (ACOG 2012; Mac-Millan et al. 2006; Taft et al. 2013). A number of reasons have been put forth as barriers to screening (i.e., knowledge gaps, lack of effective interventions to address, provider self-efficacy, fear of offending patients) highlighting the critical need to improve education around mental health during pregnancy (Taft et al. 2013). Notably, screening for perinatal depression and IPV is viewed as acceptable and desirable by most perinatal women (Gemmill et al. 2006). For health care professionals, awareness and timely identification of risk factors such as IPV and perinatal depressive symptomatology can facilitate early recognition, timely diagnosis, and appropriate management and referrals. There is a significant need for training and education of health care professionals on IPV and mental health screening, diagnosis, and appropriate management. Perinatal visits are opportune times to assess for depressive symptoms and related comorbidities. A lack of comprehensive screening protocols and treatment initiatives during this time period is a missed opportunity to improve the health and well-being of millions of women and children.

## Conclusion

This study's findings underscore the need for further research focused on the ways in which IPV influences suicidal ideation during the perinatal period, and particularly during pregnancy. To further our understanding of this association, it is imperative to examine how IPV is associated with increased suicidal ideation. This requires a more comprehensive assessment of IPV including the severity, frequency, types of abuse, and timing, as well as population-based studies, examining these factors longitudinally. An increased understanding of the relationship between IPV and suicidality will assist in the development and testing of interventions aimed at protecting and promoting the physical and mental well-being of pregnant women and their developing children.

**Conflict of interest** The authors declare no conflicts of interest.

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