The Impact of Prenatal and Postpartum Partner Violence on Maternal Mental Health: Results from the Community Child Health Network Multisite Study

Alisa J. Velonis, MPH, PhD,[1,2] Patricia O'Campo, PhD,[2–4] Vered Kaufman-Shriqui, PhD, MSc, RD,[5] Kathleen Kenny, MHSc,[6] Peter Schafer, BS,[7] Maxine Vance, RN, MS,[7] Christine Dunkel Schetter, PhD,[8] Marianne M. Hillemeier, PhD, MPH,[9] Robin Lanzi, PhD, MPH,[10] and Vernon M. Chinchilli, PhD,[11] for the Community Child Health Network (CCHN) of the Eunice Kennedy Shriver National Institute of Child Health and Human Development

Abstract

Background: Intimate partner violence (IPV) negatively impacts maternal and infant health, yet few studies assess violence at multiple time points during the childbearing year.

Methods: Using data on 2018 women from the multisite Community Child Health Network (CCHN), this study assesses the relationship between past-year IPV (reported at 1 and 12 months postpartum) and maternal depression and perceived stress measured 1 year postpartum. Past-year IPV was measured using a modified version of the HITS (Hurts, Insults, Threatens, and Screams) assessment; depression was assessed using the Edinburgh Postnatal Depression Scale; perceived stress was assessed by the Perceived Stress Scale. Multivariable logistic regression models estimated risk for depression and estimated stress scores among women reporting exposure to IPV at one or both time points compared to those unexposed to IPV, adjusting for maternal age and household income.

Results: At 1 month postpartum, 36% of participants reported past-year IPV. At 12 months postpartum, 48% of participants reported IPV at either or both interviews. Compared to women reporting no IPV at either time point, violence reported at both time points was associated with symptoms of postpartum depression (considered a score of ≥13) (odds ratio [OR] = 2.06, confidence intervals [CI] = 1.21–3.53) and increased levels of perceived stress (β = 1.64, CI = 0.86–2.41) at 12 months postpartum after adjusting for baseline depression and perceived stress, respectively.

Conclusions: These findings expand on previous research by showing that IPV, particularly when recurrent, is associated with increased risk of depression and perceived stress 1 year postpartum. Routine IPV screening paired with linkage to support services throughout prenatal and postpartum care is one strategy to address this important problem.

Keywords: intimate partner violence, maternal depression, Edinburgh Postnatal Depression Scale, maternal welfare, postpartum period, socioeconomic factors

[1]Community Health Sciences Division, Center of Excellence in Maternal and Child Health, University of Illinois at Chicago, School of Public Health, Chicago, Illinois.
[2]Centre for Urban Health Solutions, The Keenan Research Centre, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Canada.
[3]Dalla Lana School of Public Health, University of Toronto, Toronto, Canada.
[4]Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland.
[5]Department of Nutrition, Faculty of Health Sciences, Ariel University, Ariel, Israel.
[6]Gillings School of Global Public Health, University of North Carolina, Chapel Hill, North Carolina.
[7]The New York Academy of Medicine, New York, New York.
[8]Department of Psychology, University of California, Los Angeles, California.
[9]Department of Health Policy and Administration, Pennsylvania State University, University Park, Pennsylvania.
[10]Department of Health Behavior, School of Public Health, University of Alabama at Birmingham, Birmingham, Alabama.
[11]Department of Public Health Sciences, Penn State College of Medicine, Hershey, Pennsylvania.

Introduction

INTIMATE PARTNER VIOLENCE (IPV), defined as a pattern of partner-perpetrated controlling behaviors, including physical and/or sexual violence, threats, psychological attacks, or other actions intended to limit individual autonomy, is a well-recognized threat to the health of women in general[1,2] and to women and infants during the perinatal period, in particular.[3–5] While the question of whether IPV increases, decreases, or remains steady during this time has been debated,[4] the U.S. and international literature suggests that the period before and/or after pregnancy may be higher risk than the prenatal months, with estimates ranging from less than 1%–30%, depending on the target population and study design.[5–10] Risk factors that appear to increase women's vulnerability to violence during the perinatal time include poverty-related variables, younger age, pregnancy intention, and marital status.[3–5,7,10]

Women who experience IPV during the perinatal period face a number of unique health challenges. Not only is this a time of changes and stressors but also the deleterious impacts of violence on maternal, fetal, and infant well-being make this a critical time for identification and intervention. Although physical violence can result in injury to both mother and child, the more likely sequel is that IPV affects multiple aspects of maternal health (*e.g.*, maternal weight gain and nutrition, antenatal depression and stress, prenatal care seeking, and risky behaviors) which contribute to adverse neonatal outcomes, including low birth weight, preterm delivery, and small for gestational age infant.[3–6] Associations between IPV and problems in the postpartum period include substantial evidence relating to IPV and postpartum depression (PPD),[11,12] which has been linked to negative health and parenting practices among mothers, infant temperament, and cognitive and behavioral problems in young children.[13–15] Fewer studies have looked specifically at maternal stress and IPV, with mixed findings.[16,17] Unfortunately, much of the research on IPV and postpartum outcomes have been cross-sectional[12,18] or with less than 6 months between IPV and outcome,[8,19] meaning that neither the longer-term impacts of violence on maternal and child health nor the effects of recurrent IPV during the postpartum period are well captured.

The few studies that have examined IPV and maternal mental health at multiple points over a longer time frame have found that the timing and duration of violence impact women's experience of depression. Janssen et al.[11] analyzed data from the Canadian Maternity Experiences Survey, a national-level pan-maternity telephone survey that asked new mothers ($n = 6421$) within 6 months of delivery about experiences with physical or sexual violence by a partner, friend, or family member over the previous 2 years. Although retrospective, the survey identified whether the violence happened before, during, or after pregnancy/birth. The prevalence of physical or sexual violence was almost 8%, and IPV exposure increased the odds of PPD, depending on when and for how long the violence occurred: abuse before pregnancy only was associated with a threefold increase in the odds of PPD, whereas violence that started before pregnancy, stopped during pregnancy, and resumed postpartum was associated with nearly a fourfold increased risk of depression, and violence that began during the postpartum period brought over a fourfold increase in the depression risk. Finally,

women who experienced violence during all three periods were at the highest risk of PPD, with more than sixfold increase. Agrawal et al.[17] reported similar results among young women at 6 and 9 months postpartum.

The current study

The current research draws from a study focused on the interconceptual period and maternal and infant well-being. The Community Child Health Network (CCHN) study is a longitudinal, multisite, community-based participatory research (CBPR) project investigating social, economic, and medical disparities during the interconceptual period.[20] We use data from two time points, including a baseline in-person interview conducted a few weeks after the birth of the child (T1) and again 1 year postpartum (T2), to examine the impact of IPV during the childbearing year through 1 year postpartum. Drawing from the strength of the longitudinal data in CCHN and based on existing research showing the lasting and compounding effects of IPV on women, we hypothesize the following:

(1) Women who report IPV at one time point (T1 only or T2 only) will have a higher risk of reporting depressive symptoms at 12 months postpartum (at T2) compared to women who report no IPV at either time point.

(2) Women who report IPV at both T1 *and* T2 will have the highest risk of reporting depressive symptoms at 12 months postpartum (at T2), compared to women who report no IPV or IPV at one time point only.

(3) Women who report IPV at one time point (T1 only or T2 only) will have higher levels of perceived stress (at T2) compared to women who report no IPV.

(4) Perceived stress scores will be the highest among women who report IPV at both T1 and T2 compared to women who only report IPV at one time point.

This study fills a gap in longitudinal research about IPV and postpartum mental health. It is one of the few studies that uses a comprehensive measure of IPV[1,2] that goes beyond assessment of just physical or sexual violence which is commonplace. It assesses violence at multiple time points, including IPV that occurred before or during pregnancy, as well as within the first year postpartum. In addition, our outcome variables (depression and stress) are assessed at multiple interviews using validated measures up to 12 months postpartum, a longer period of time than allowed for in the majority of past research.

Methods

Study design

The CCHN is a 5-year longitudinal multisite study funded by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development. Utilizing principles of CBPR, the CCHN is a collaborative partnership of six university departments and local community partners, with participants residing in Washington, DC; Baltimore, Maryland; Los Angeles County, California; Lake County, Illinois; and seven counties in eastern North Carolina. The Data Coordination and Analysis Center (DCAC) resides in Hershey, PA. The full cohort included 2510 mothers recruited between

2008 and 2010. Research was conducted in accordance with the institutional review boards of the collaborating institutions.

The CCHN team identified families with low income as the target population for our study and among mothers with low income, those delivering preterm infants were oversampled to identify at-risk populations. Interviews were conducted in participants' homes, with most interviews administered by community members with training in community research or clinical service delivery. CBPR methods were used across all aspects of study design, implementation, and analysis. For a complete description of these CBPR processes, see Ramey et al.[20]

Study sample

Participants from all sites were recruited using a hospital-based sample recruited shortly after childbirth and also prenatally at one site (NC). All eligible women were screened during the recruitment period (2008–2010) and enrolled if they consented and met eligibility criteria: self-identified as "Black or African American," "Hispanic or Latina," or "White," were between 18 and 40 years of age, resided in one of the study's catchment areas for at least 6 months, had three or fewer children, and had no plans for surgical sterilization after birth of the index child. The sample for this study ($n=2018$) consists of women who completed both a T1 interview, as well as at least one additional interview over the course of the study (information was gathered every 6 months after enrollment), and who responded to the questions about partner violence at T1 (baseline) and/or T2 (12 months post enrollment).

Primary outcomes

The primary outcomes of interest for these analyses were the prevalence of moderate-to-severe depression and perceived stress at T2.

Maternal depression

We were interested in assessing PPD up to 1 year postpartum.[21] Depression at both T1 and T2 was assessed using the validated Edinburgh Postnatal Depression Scale (EPDS), a 10-item questionnaire that evaluates the presence of symptoms consistent with depression as experienced over the 7-day period preceding the interview.[22] Scores using this instrument can range from 0 to 30. EPDS is not a diagnostic assessment, but many studies use a cutoff of ≥13 to indicate presence of major and minor depression.[23,24] A recent systematic review reported positive predictive values across several studies for using ≥13 as a cutoff in detecting major/minor depression ranged from 30% to 100%; negative predictive values across those same studies were 84%–100%.[24] At the recommendation of our network's measurement committee comprised of academic researchers and community members from each site, we made changes to one question of the EPDS. Question 6 in the original EPDS states "Things have been getting on top of me." We added two phrases to help the population fully understand that phrase; our wording of the question was, "Things have been getting 'on top of me' ('overwhelming' me or 'getting the best of me')."

Stress

Perceived stress was measured at T1 and T2 as a composite score based on the 10-item version of the Perceived Stress Scale (PSS).[25] The advantage of this measure of stress is that it is a well validated index of general stress appraisal from all domains (*e.g.*, work, family) and capture perceptions of life as being unpredictable, uncontrollable, or "overloaded" for the month before the interview. In this sample, PSS was highly correlated with multiple forms of specific stress such as financial, pregnancy, discrimination, chronic, and life events.[26] Items are answered on a five-point rating scale (1 = never and 5 = almost always) based on how often respondents felt or thought a certain way.[27] The scale, which ranged from 0 to 38 at T2 with higher scores indicating higher perceived stress, was tested for internal consistency with the study population with Cronbach's alpha coefficients and demonstrated good reliability ($\alpha = 0.83$ at T1).[26]

Main exposure variable

Intimate partner violence. IPV was measured using a modified version of the HITS (Hurts, Insults, Threatens, and Screams), a 5-item domestic violence screening instrument measuring the frequency of being physically hit, insulted, threatened, screamed at, and/or, for the item added to the original scale, had activities curtailed by a partner.[28,29] Questions were answered using a five-point rating scale, where 1 was "never" and 5 was "frequently." Participants were asked to specify if the perpetrator was a "partner/spouse," "another family member," or "someone else." The tool is scored on a continuous scale from 5 to 25, with 5 being "no IPV" and any score higher than 5 indicating exposure to IPV if perpetrator was identified as "partner or spouse." A single, 4-category indicator variable for IPV exposure over the two time points was created (No IPV, IPV at T1 only, IPV at T2 only, and IPV at T1 and T2).

Confounding variables

Two demographic characteristics were considered potential confounders in this analysis: maternal age (used continuously) and household income, used categorically at ≤100% of Federal Poverty Level [FPL], 101%–200% FPL, 201%–300% FPL, 301%–400% FPL, and >400% FPL.

Multiple imputation

We used methods of multiple imputation procedures to avoid the bias that occurs when there are large losses to follow-up and to avoid mischaracterization of participants' trajectories by ignoring the missing data. Our sample included mothers who had a T1 interview and at least one more follow-up interview. We used data at any of the follow-up points to impute missing T2 data which could have been missing due to a missed interview or, in fewer instances, skipped questions at T2. Using IVEware we generated 10 imputations through chained equation procedures[30,31]; results were then pooled together using the MIANALYZE procedure in SAS. To ensure that biases were not being introduced *via* multiple imputation, we compared findings from the complete case analyses with imputed samples and found that the results were remarkably similar suggesting that

imputation process retained the overall correlation structure of the original sample.

Statistical analyses

The primary goal of this study was to estimate the relationship between IPV exposure and depression and perceived stress at 12 months postpartum among new mothers. We applied four logistic regression models to estimate the multivariable-adjusted odds ratio (OR) and 95% confidence intervals (CI) for the odds that new mothers exposed to IPV would report moderate/severe depressive symptoms at 12-months postpartum compared to those unexposed to IPV. We used multivariable linear regression to model mothers' stress scores among those exposed and unexposed to IPV. In the multivariable regression models, we adjusted for the a priori potential confounders of maternal age and household income. We also fit models with the additional adjustment variables of T1 EPDS and T1 PSS to isolate the impact of IPV on T2 outcomes.

Results

Our analytic sample included 2018 participants, the majority of whom were 24 years or younger at the T1 interview (Table 1). Approximately three-quarters of participants were identified as African American/Black or Latina/Hispanic, and 89% were in intimate relationships with their newborn child's father. Participants primarily had a high school education or general equivalency diploma and household incomes of less than or equal to 100% of the FPL. Among those who reported data on IPV at T1, 35.5% reported experiencing one or more forms of violence (Table 2). At T1, 6.2% of participants had EPDS scores indicative of moderate/severe depression, with higher rates among participants who reported exposure to IPV (Table 2). Likewise, the average PSS score at T1 for all participants was 12.4 and was higher among participants exposed to IPV. At T2, 7.6% of participants reported depression, and the average PSS score was 14.4.

Table 3 presents the results of our regression models, described below:

Hypothesis 1 (depression): We did not find support for our first hypothesis that women who experienced IPV at a single time point (T1 *or* T2) would have higher odds of reporting moderate/severe depression at 12 months postpartum compared to women with no exposure to IPV (Model 1 and Model 2 in Table 3).

Hypothesis 2 (depression): Compared to women reporting no violence at either T1 or T2, women exposed to IPV at both time periods (T1 *and* T2) had an increased odds of reporting moderate/severe depression at T2 (Model 1—OR = 3.23, 95% CI: 1.91–5.47; Model 2—OR = 2.06; 95% CI: 1.21–3.53). Thus, even after adjusting for baseline depression, the odds of experiencing depression at T2 doubled for women experiencing recurrent IPV compared to women with no IPV.

Hypothesis 3 (stress): In both Models 3 and 4, while IPV at T1 only was not associated with mother's perceived stress at the $p > 0.05$ level, IPV at T2 only was significantly associated with mother's perceived stress (Model 3—$\beta = 2.11$, 95% CI: 1.01–3.21; Model 4—$\beta = 1.72$, 95% CI: 0.86–2.41). The effect size in both models was in the low-to-mid range (Model 3—$d = 0.33$; Model 4—$d = 0.27$).

TABLE 1. SOCIAL DEMOGRAPHIC CHARACTERISTICS BY VIOLENCE STATUS OF MOTHER IN THE COMMUNITY CHILD HEALTH NETWORK STUDY (BASELINE AND TIME 1 INTERVIEWS)

	Total sample n (%)
Sample size	2018
Age	
24 and younger (referent)	1054 (52.2)
25–34	765 (37.9)
35 and older	199 (9.9)
Income (% federal poverty line)	
≤100%	664 (40.8)
101%–200%	381 (23.4)
201%–300%	188 (11.6)
301%–400%	124 (7.6)
>400% (referent)	270 (16.6)
Missing	391
Race/ethnicity (self-defined)	
African American or Black	1049 (52.0)
White or Caucasian (referent)	447 (22.2)
Latina or Hispanic	480 (23.8)
Multiracial/other	42 (2.1)
Education	
Less than high school	371 (18.8)
High school or GED	756 (38.3)
Technical or vocational school/ associate degree/some college	536 (27.1)
Bachelor degree or higher (referent)	308 (15.6)
Other/unknown	3 (0.2)
Missing	44
Intimate relationship status at baseline	
Relationship with index child's father	1543 (88.5)
Relationship with other than index child's father	17 (1.0)
Not in intimate relationship (referent)	183 (10.5)
Missing	275

GED, general equivalency diploma.

Hypothesis 4 (stress): As expected, Model 3 and Model 4 found that IPV exposure at both T1 *and* T2 was the strongest predictor of perceived stress at T2 (Model 3—$\beta = 3.15$, 95% CI: 2.15–4.16, $d = 0.49$; Model 4—$\beta = 1.71$, 95% CI: 0.82–2.16, $d = 0.27$). The effect size in Model 3 was medium ($d = 0.49$), and although it was reduced after adjusting for T1 stress in Model 4 ($d = 0.27$), this low-medium effect remains consequential.

Discussion

In this prospective study, we expected that women exposed to IPV at two time points would have the highest odds of reporting moderate/severe depression and perceived stress 12 months postpartum compared to women exposed to IPV at only one time point or who reported no IPV exposure. Our findings provide partial support to our premise. While exposure to partner violence during one time period alone was not significantly associated with higher rates of depression at T2, the odds of depression for women who reported IPV at *both* time points was twice that of women who reported no IPV. Likewise, violence reported at T1 and T2 was the

TABLE 2. DEPRESSION AND STRESS CHARACTERISTICS OF COMMUNITY CHILD HEALTH NETWORK
PARTICIPANTS AT T1 AND T2 INTERVIEWS BY INTIMATE PARTNER VIOLENCE EXPOSURE AT T1 AND T2

		T1	
	n (%)	Depression EPDS ≥13 (%)	PSS score mean (SD)
All Participants			
Total	2018	118 (6.2)	12.4 (6.6)
Missing[a]	105		
By IPV status			
No IPV at T1	1104 (64.2)	41 (3.7)	11.1 (6.2)
Any IPV at T1	615 (35.8)	64 (10.4)	14.5 (6.6)
Missing[b]	299		

		T2	
		Depression EPDS ≥13 (%)	PSS score mean (SD)
All participants			
Total	2018	128 (7.6)	14.4 (6.4)
Missing[c]	327		
By IPV status			
No IPV at T1 and T2	709 (51.9)	30 (4.2)	13.0 (6.2)
Any IPV at T1 and T2	260 (19.1)	33 (12.7)	16.5 (6.1)
Any IPV at T1 or T2 only	396 (29.0)	33 (8.3)	15.3 (6.3)
Any IPV at T1 only	218	12 (5.5)	14.4 (6.1)
Any IPV at T2 only	178	21 (11.8)	16.4 (6.5)
Missing[d]	653		

[a]Missing category includes participants with missing values for postpartum depression (EPDS) at T1 or perceived stress (PSS) at T1.
[b]Missing category includes participants with missing values for IPV status at T1, postpartum depression (EPDS) at T1, or perceived stress (PSS) at T1.
[c]Missing category includes participants with missing values for postpartum depression (EPDS) at T2 or perceived stress (PSS) at T2.
[d]Missing category includes participants with missing values for IPV status at T1 or T2, postpartum depression (EPDS) at T2, or perceived stress (PSS) at T2.
EPDS, Edinburgh Postnatal Depression Scale; IPV, intimate partner violence; PSS, Perceived Stress Scale; T1, Time 1; T2, Time 2.

strongest predictor of higher levels of perceived stress. Thus, it seems likely that repeated experiences of IPV are particularly detrimental to the mental health of mothers with young infants, resulting in higher levels of perceived stress, as well as increased odds of depressive symptoms.

This conclusion is supported by other research that finds that IPV occurring at more than one time across the perinatal/postpartum period has the strongest association with depression.[5,11,17] Agrawal et al.,[17] who also measured physical and nonphysical abuse, examined IPV at 6- and 12 months postpartum, comparing depression and stress in women with IPV that *emerged* (reported at 12 months only), *dissipated* (reported at 6 months only), or *repeated* (reported at 6- and 12 months) to women with no reported partner violence. Like us, they found stress and depression highest among participants with repeated IPV. Our study expands on their findings by involving a larger more diverse sample and including pregnancy-related violence.[17]

TABLE 3. REGRESSION MODELS FOR RELATIONSHIP BETWEEN EXPOSURE TO INTIMATE PARTNER VIOLENCE
AT TIME 1 AND/OR TIME 2 AND POSTPARTUM DEPRESSIVE SYMPTOMS AND PERCEIVED STRESS
AT 12 MONTHS POSTPARTUM IN COMMUNITY CHILD HEALTH NETWORK SAMPLE

	Depression				*Perceived stress*			
	Model 1[a]		*Model 2[b]*		*Model 3[a]*		*Model 4[c]*	
	OR	*CI*	*OR*	*CI*	*β*	*CI*	*β*	*CI*
No IPV	1	—	1	—	—	—	—	—
IPV at T1 only	**1.33**	**1.23–4.56**	0.93	0.47–1.86	0.91	−0.02–1.84	−0.06	−0.83–0.72
IPV at T2 only	2.37	0.68–2.63	**2.14**	**1.11–4.16**	**2.11**	**1.01–3.21**	**1.72**	**0.75–2.71**
IPV at T1 & T2	**3.23**	**1.91–5.47**	**2.06**	**1.21–3.53**	**3.03**	**2.16–3.91**	**1.64**	**0.86–2.41**

Bold findings are significant at <0.05.
[a]Models 1 & 3 adjusted for household income and maternal age only.
[b]Model 2 adjusted for household income, maternal age, and postpartum depression at T1.
[c]Model 4 adjusted for household income, maternal age, and perceived stress at T1.
CI, confidence interval; OR, odds ratio.

Our findings are likely a conservative estimate of the impact of IPV on T2 depression and stress as we adjusted for the participants' status on these outcomes at T1. It is possible that accounting for T1 status is a form of overadjustment.[11] While our data show a larger magnitude of effect for IPV before controlling for baseline EPDS and PSS scores, statistically significant higher rates of depression and stress at 12 months postpartum were observed across our models, indicating that depression or stress at T1 alone cannot account for higher odds of depression or higher perceived stress at T2.

Moreover, we find these increases to be clinically, as well as statistically, meaningful. Even after adjusting for baseline depressive symptoms, women who experienced violence at T2 only or at T1 and T2 retained twice the odds of depression. Likewise, although the effect sizes of violence on perceived stress decreased after adjusting for T1 scores, they remained clinically significant.

Strengths & Limitations

Ours is one of the only large, multisite, prospective, and longitudinal studies to use repeated measures for both exposure and outcome variables. IPV often recurs within relationships and may impact women differently depending on the patterns of abuse. Classifying women as *exposed* or *unexposed* based on a single report is problematic, and even studies that have been able to categorize IPV as taking place before, during, or after pregnancy remain cross-sectional in nature[5,8,11,32] and/or unable to account for emerging violence.[33] Despite indications that women may be at higher risk for IPV before and after rather than during pregnancy,[34] much of the research on the association between IPV and maternal mental health does not differentiate between prenatal and postpartum violence, making it impossible to know about the impact of IPV that starts or continues during this period[33]; an exception to this is earlier work by Gielen et al.[9] which found that among 275 women who were interviewed at multiple points during and after pregnancy, 19% reported moderate or severe violence prenatally, whereas 25% reported experiencing violence during the 6 months postpartum. In addition, by following participants for a full-year postpartum, our study identifies longer term mental health implications of IPV than other research.[8,11,33]

As a large multisite study, we recruited a sizeable, primarily low-income sample with diversity across age, racial/ethnic, and geographic characteristics, and we used strong and rigorous approaches to deal with missing data to correct for biases that would have been introduced to our analyses due to loss to follow-up.[35] Finally, while we recognize that racial and ethnic inequities often result in women of color experiencing higher levels of violence and negative physical and mental health outcomes, we did not believe that race or ethnicity categories themselves were confounders,[36] nor were they part of our research questions, so we did not include them as adjustment variables in our models.

The prevalence of IPV within our sample was 36% at T1. This is higher than what is reported in national samples of pregnant women using data sets such as PRAMS (U.S. Pregnancy Risk Assessment Monitoring System) where IPV rates are around 6%.[37] We might expect a higher prevalence rate as our study, compared to many past studies, utilized a comprehensive measure of IPV going beyond physical and

sexual violence to include dimensions of control and emotional abuse. Our rates of IPV are also closer to those seen in large samples of low-income (21.2%) or lone mother (35%) samples.[38] CCHN participants were more likely to be from structurally marginalized communities, where the barriers to addressing partner violence before it becomes chronic are numerous.[39–41] Furthermore, our rates could also have been higher due to personally inviting participants to become part of the study, using community members trained to establish rapport, and by conducting the interviews in-person within participants' homes, a level of trust may have been established that facilitated disclosure.

The levels of perceived stress for those who did not report violence (score of 11.1) are comparable and even lower than the original national sample studied by Cohen and Williamson[25] where the average for women was 12.1 on the PSS10. Women in our sample who reported IPV had considerably higher PSS levels at 14.5. Whether their higher PSS levels are due to violence alone is not clear as PSS captures overall stress from multiple domains in life.

While one of the strengths of the CCHN is its longitudinal and intricate design, this also presented limitations. Ideally, we would have included additional adjustment variables in our models, but survey complexity often made this impossible (for example, we could not differentiate between social support received from a partner verses someone else). Adjustment for additional potential confounders (*e.g.*, alcohol use) was not performed as the literature suggests that the relationship between alcohol use and other substances (*e.g.*, tobacco), depression, and IPV is complex and could possibly involve mediation.[42–45] Therefore, we kept our list of adjustments for confounding parsimonious. We also attempted to identify if the perpetrator of violence at T1 and T2 was the same individual, but the method used to track relationship trajectory was not directly linked to the violence questions.

An additional limitation can be seen in our measures which, although well-validated tools, have drawbacks. As mentioned earlier, whereas the EPDS asked about symptoms experienced in the previous 7 days, the PSS asked about stress over the past month, and IPV frequency was measured over the past year. In an ideal world, we could have asked about the timing of the most recent event to gauge how close in proximity it was to the period covered by the stress and depression scales; this may help to shed light on whether the significance of violence reported at T2 only on perceived stress could be related to the expanded time frame included in the stress measure, or if the impact of violence on depression and stress is genuinely different. Because of the vast literature linking maternal depression during the childbearing year with adverse child outcomes, we also chose to model the EPDS variable as a binary outcome indicating high probability of a diagnosis of depression.[22,24] Yet, emerging evidence confirms the negative impacts on the young child when mothers have subclinical symptoms of depression.[46] Thus, the extent to which IPV promotes subclinical symptoms of depression, which is likely much greater than what we report in this study for the link between IPV and depression, should be an area of concern for both researchers and practitioners.

Finally, as an increasing amount of research suggests that ongoing coercive violence may be different from one-off incidents that are not part of a larger pattern,[47] distinguishing between different types of IPV is becoming more important.

We attempted to stratify our analyses by type and frequency of events, but our categorical sample sizes were extremely small; we were also uncomfortable with the assumptions we made based on limited information about the relationships. While we call out these as limitations, it should be noted that, to our knowledge, no current research on perinatal IPV and postpartum mental health sufficiently addresses these concerns, and we strongly recommend that future studies be designed to address these emerging issues.

Conclusions

We believe that this research points to the critical role that both ante- and postnatal care have for new mothers and their infants. Specifically, we call out the need for IPV screening not only during the prenatal stage but also continuing through the postpartum period, a time when the frequency and quality of maternal care vary widely by population,[48] and little research exists on IPV screening practices. Evidence suggests that this could present a great opportunity for identifying new mothers whose relationships are unsafe or violent, particularly as the presence of children can be a strong motivator for women to resist previously tolerated violence.[49] The period shortly after birth is a time when women are often surrounded by friends, family, and other care providers, who can offer the support and resources needed by women in violent relationships to improve safety and emotional well-being[50]; interventions initiated during this period may prove particularly effective. Finally, research to improve postpartum identification of violence and to develop appropriate effective interventions that address the immediate safety needs of victims, as well as the longer term impacts, may be warranted.

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Author Disclosure Statement

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Address correspondence to:
Alisa J. Velonis, MPH, PhD
Community Health Sciences Division
Center of Excellence in Maternal and Child Health
University of Illinois at Chicago
School of Public Health
1603 W. Taylor Street
Chicago, IL 60612

E-mail: avelonis@uic.edu

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