Intimate Partner Violence Among Pregnant Veterans: Prevalence, Associated Mental Health Conditions, and Health Care Utilization

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BACKGROUND: Intimate partner violence (IPV) is a prevalent and serious health concern for women veterans, associated with mental and physical health symptoms. The adverse impacts of IPV are exacerbated during pregnancy, with added risks for pregnancy and postpartum outcomes.

OBJECTIVE: Identify the scope of IPV among pregnant veterans and associations with health outcomes.

DESIGN: Data were obtained from a national retrospective cohort study.

PARTICIPANTS: Study participants were 442 pregnant veterans using VHA maternity care benefits.

MAIN MEASURES: Mental health history was assessed via self-report measure and chart review; history of IPV and perinatal depression were assessed via brief validated self-report measures.

KEY RESULTS: Fourteen percent of the sample reported past-year IPV. Report of past-year IPV was associated with higher self-reported rates of lifetime mental health disorders including depression ($p = 0.01$), posttraumatic stress disorder ($p = 0.02$), anxiety disorders ($p = 0.05$), mood disorders ($p = 0.01$), bipolar disorder ($p = 0.001$), and eating disorders ($p = 0.003$); past-year IPV was also

associated with the diagnosis of posttraumatic stress disorder during pregnancy ($p = 0.002$). Additionally, past-year IPV was associated with higher rates of military sexual trauma (MST; $p = 0.03$), pregnancy health risk behaviors (i.e., smoking, alcohol, and drug use; $p = 0.004$), greater number of VHA mental health visits during pregnancy ($p = 0.04$), and a lower likelihood of seeking social support from a spouse or partner ($p < 0.0001$).

CONCLUSIONS: Results indicate substantial rates of IPV among pregnant veterans, and high rates of mental health conditions which may be exacerbated by MST experience and lower likelihood of seeking social support. Clinicians treating pregnant veterans should screen for and address IPV and mental health treatment needs, and risks should be assessed among pregnant veterans experiencing IPV.

KEY WORDS: women; veterans; intimate partner violence; pregnancy; perinatal depression.

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INTRODUCTION

Women veterans are a demographic group at high risk for intimate partner violence (IPV), which includes physical, sexual, and psychological abuse from a current or former intimate partner. Studies indicate that 18% of women veterans receiving Veterans Health Administration (VHA) care report past-year IPV, and one-third of women veterans report lifetime IPV.^{1–3} The number of women veterans using VHA maternity care benefits has been increasing rapidly; the number using benefits increased 14.4-times in a 15-period starting in FY2000.⁴ This increase underscores the need to examine the prevalence and correlates of IPV during pregnancy in this population. The negative health consequences of IPV are exacerbated during pregnancy, as women have increased physical, emotional, and financial needs, and IPV can impact maternal health and pregnancy outcomes.^{5, 6} These

consequences may be heightened among women veterans who also experience elevated rates of lifetime sexual trauma (31% childhood sexual trauma; 11% adulthood sexual trauma prior to military service),⁷ sexual assault or harassment during military service (military sexual trauma, MST; 38.4%⁸), and posttraumatic stress disorder (PTSD; 13.4%⁹), all of which are associated with IPV experience and negative health outcomes.¹⁰ As IPV during the perinatal period conveys significant risk for adverse physical and mental health outcomes for women and the developing fetus,^{11, 12} pregnant veterans may face particular health risks and needs. To our knowledge, no previous research has examined the impact of IPV during pregnancy on women veterans' health or treatment use.

In civilian populations, IPV during the perinatal period is associated with increased risk for depression, poor prenatal nutrition, substance abuse, adverse neonatal outcomes, and maternal and neonatal mortality.^{13, 14} Thus, women experiencing IPV during pregnancy have an increased need for physical and mental health care; however, IPV is also associated with difficulties with treatment engagement and premature termination from treatment.^{13, 15, 16} Among women veterans, IPV is associated with increased use of VHA health care services such as emergency department utilization and inpatient stays,¹⁷ but poorer reported care continuity.³

Both women veterans and perinatal civilian women with recent IPV report increased need for and use of health care, but also greater difficulty obtaining that care. Pregnancy may be a time of particularly fractured care among women veterans using VHA health care.¹⁸ During the perinatal period, veterans receive prenatal and obstetric care outside of the VHA but may still receive other health care, such as primary or mental health care within the VHA. Primary care is the most widely used type of health care by women veterans at VHA,⁴ and in the community;¹⁹ thus, the impact of IPV on women veterans' health is relevant for all clinicians treating women veterans. Given the increased health risks of IPV and adverse outcomes during pregnancy, and particular considerations for veterans, it is important to understand the care needs of this population.

We examined the rates and correlates of IPV among a sample of pregnant veterans. Our objectives were to (1) identify the prevalence of past-year IPV among pregnant veterans using VHA care; (2) identify salient sociodemographic, military service, or social support characteristics among pregnant veterans screening positive for IPV; and (3) compare the rates of mental health, substance use, pain disorders, pregnancy health risk behaviors, and treatment use between pregnant veterans with and without past-year IPV. We hypothesized that pregnant veterans endorsing past-year IPV would report poorer mental health compared with their peers who did not report past-year IPV. We also hypothesized that there would be higher rates of pregnancy health risk behaviors and mental health treatment use among pregnant veterans reporting past-year IPV compared to their peers who did not report past-year IPV.

METHODS

Study Population

Participants were enrolled in a larger cohort study, the Center for Maternal and Infant Outcomes and Research in Translation (COMFORT). Participants were women veterans utilizing VHA maternity care benefits recruited from 15 VHA medical centers across the USA between January 2016 and January 2020. Enrolled veterans participated in prenatal and postpartum interviews. This analysis uses data from the prenatal interview. Study methods have been described in greater detail elsewhere.^{18, 20–23} The VHA Central Institutional Review Board approved this study and granted a waiver of written informed consent; however, verbal informed consent was obtained. Data available on request from authors.

Women from the COMFORT sample were eligible for this analysis if they had a complete prenatal interview (by 1/23/20), completed an IPV screen,²⁴ and could be matched by social security number to their VHA electronic medical record (EMR). All variables reported in this study were from the prenatal interviews (including self-report of mental health history and pregnancy health risk behaviors), except for mental health diagnoses, pregnancy health risk behavior diagnoses, and number of VHA mental health visits during pregnancy, which were obtained from the EMR.

Classifying Intimate Partner Violence Exposure

The E-HITS scale includes five items assessing IPV behaviors by a current or former partner in the past 12 months: physically hurt you, insulted you, threatened to harm you, screamed or cursed at you, forced you to have sexual activities. Responses are scored from 1–5, respectively: Never, Rarely, Sometimes, Often, Frequently. Total scores are the sum of all items. We dichotomized total scores into < 7 and 7+ based on previous work in women veterans.²⁵

Participant Characteristics

Demographic data from the interviews included age, marital status, race, and ethnicity. Life situation was examined via employment status, current living situation (alone, with a partner, and/or children), housing situation (in house/apartment one owns or rents, staying with family or friends). Military-related characteristics included service in Operations Enduring Freedom, Iraqi Freedom, and/or New Dawn (OEF/OIF/OND); military branch; military service-connected disability, as determined by the veterans Benefits Administration;⁴ and military sexual trauma (MST).²⁶

Medical history included both self-reported conditions and diagnoses obtained from ICD codes in the VHA EMR. We examined mental health conditions, substance use, and presence of musculoskeletal pain conditions during two time periods: in the 9 months prior to pregnancy, and during pregnancy. We created a composite “pregnancy health risk behaviors” variable that included self-reported smoking and/or an

EMR diagnosis of alcohol use disorder, drug use disorder, or nicotine dependence during pregnancy. We also examined mental health care utilization during pregnancy, through the number of VHA mental health visits during pregnancy (as recorded in the EMR), as well as through self-reported responses to whether the participant planned to continue seeing a mental health provider during pregnancy.

Finally, we examined relevant pregnancy characteristics, including seeking social support from a spouse or partner, and prenatal depression symptoms as measured by the Edinburgh Postnatal Depression Scale (EPDS). The EPDS is a validated screening tool for pregnant women with a score of ≥ 10 determined to be an optimal cut-off point for detecting depression symptoms during pregnancy.²⁷ We examined the EPDS by cut-off score (< 10 , ≥ 10).

Data Analysis

Descriptive analyses explored differences in participant characteristics by IPV exposure (E-HITS < 7 vs. E-HITS $7+$). We compared groups using chi-squared tests for categorical variables (with Fisher's exact tests when expected cell sizes were < 5) and Student's t tests for continuous variables, with Satterthwaite adjustment when appropriate. To further examine the association between participant characteristics and IPV exposure, we utilized logistic regression with backward selection, retaining significant variables from our bivariate analysis. To facilitate interpretation of our model, we dichotomized variables that were not initially dichotomized, including marital status (married vs. not), MST (any past MST vs. none), and any self-reported past mental health diagnosis (which included an affirmative response to any of the eight included mental health conditions). Odds ratios (ORs) and 95% confidence intervals (95% CIs) are reported. All analyses were conducted in SAS v.9.2 (SAS Institute, Inc., Cary, North Carolina).

RESULTS

Of our sample of 442 women veterans, 62 (14%) scored a 7 or higher on the E-HITS, indicating past-year IPV. In the full sample, women were 32.4 (± 4.5) years of age on average and 55.7% were white. In our sample, 52.5% of women reported being employed part or full-time. Most women (91.7%) reported living in a home or apartment that they or their spouse owned or rented. The majority of our sample (97.7%) served in OEF/OIF/OND; just under half (48.9%) served most recently in the Army. Most of our sample (84.4%) had a service-connected disability defined as health conditions linked to their military service.²⁸ Demographic characteristics were similar between the IPV- and IPV+ groups, with the exception of marital status and living situation. Women in the IPV- (< 7 E-HITS) group were more likely to be married compared to women in the IPV+ ($7+$ E-HITS) group as well as report living with a spouse or partner (see Table 1). Significantly,

Table 1 Demographics and Military Characteristics by E-HITS Group (N = 442)

Characteristic	E-HITS < 7 (n = 380)	E-HITS $7+$ (n = 62)	p value
Estimated age, M $\pm$ SD, range	32.3 $\pm$ 4.5 (20.1–44.6)	32.8 $\pm$ 4.8 (22.4–41.3)	0.40
Marital status (n, %)			
Single	77 (20.3)	19 (30.6)	< 0.0001*
Married	268 (70.5)	24 (38.7)	
Divorced/separated/widowed	34 (8.9)	19 (30.6)	
Missing/unknown	1 (0.3)	0 (0.0)	
Race/ethnicity (n, %)			
White	212 (55.8)	34 (54.8)	0.89
Black	102 (26.8)	20 (32.3)	0.38
Other	69 (18.2)	6 (9.7)	0.10
Hispanic or Latino/Latina	81 (21.3)	8 (12.9)	0.15
OEF/OIF/OND (n, %)	372 (97.9)	60 (96.8)	0.64
Employed part or full-time (n, %)	198 (52.1)	34 (54.8)	0.73
Current living situation (n, %)			
With a spouse or partner	327 (86.1)	36 (58.1)	< 0.0001*
Children who are related to you	218 (57.4)	32 (51.6)	
Housing situation in past six months (n, %)			
Apartment or house that you and/or your partner own	190 (50.0)	27 (43.6)	0.35
Apartment or house that you and/or your partner rent or live in without paying rent	157 (41.3)	30 (48.4)	0.30
Staying with family or a friend	29 (7.6)	3 (4.8)	0.60
Number of children in household, M $\pm$ SD, range	0.92 $\pm$ 0.85, 0–3	0.90 $\pm$ 0.94, 0–3	0.87
Military branch (n, %)			
Air Force	78 (20.5)	6 (9.7)	0.18
Army	183 (48.2)	33 (53.2)	
Marine Corps	39 (10.3)	10 (16.1)	
Navy	75 (19.7)	12 (19.4)	
Coast guard	2 (0.5)	1 (1.6)	
Other	3 (0.8)	0 (0.0)	
Service-connected status (n, %)	319 (83.9)	54 (87.1)	0.64
Seek social support from spouse or partner during pregnancy (n, %)	360 (94.7)	47 (75.8)	< 0.0001*
MST harassment: Received uninvited and unwanted sexual attention during military service (n, %)	190 (50.0)	40 (64.5)	
MST rape: Force or the threat of force was used to have unwanted sexual contact during military service (n, %)	111 (29.2)	27 (43.5)	0.03*

*Descriptive analyses examined differences in participant characteristics by women with IPV exposure (E-HITS < 7 vs. E-HITS $7+$). For categorical variables, we present the count and percentage; for continuous variables, means, standard deviation, and ranges are shown * $p < 0.05$*

more women in the IPV+ group reported a history of MST harassment or MST assault (see Table 2).

Women in the IPV+ group were significantly more likely to report or have indications of a pregnancy health risk behavior compared to women in the IPV- group (17.7% vs. 6.1%, $p = 0.004$). Additionally, the IPV+ group had significantly higher proportions of women reporting a lifetime depression diagnosis, PTSD, anxiety, mood disorders, bipolar disorder, and eating disorders, compared to the IPV- group. Women in the

Table 2 Health and Mental Health Conditions, Risk Behaviors, MST, and Mental Health Treatment by E-HITS Group

Characteristic	E-HITS < 7 (n = 380)	E-HITS 7+ (n = 62)	p value
Risky behaviors during pregnancy† (n, %)	23 (6.1)	11 (17.7)	0.004*
Self-reported past diagnoses (n, %)			
Depression	220 (57.9)	47 (75.8)	0.01*
PTSD	158 (41.6)	36 (58.1)	0.02*
Anxiety disorder	201 (52.9)	41 (66.1)	0.05*
Mood disorder	27 (7.1)	11 (17.7)	0.01*
ADHD or ADD	28 (7.4)	5 (8.1)	0.80
Bipolar disorder	16 (4.2)	10 (16.1)	0.001*
Schizophrenia	1 (0.3)	1 (1.6)	0.26
Eating disorder	6 (1.6)	6 (9.7)	0.003*
EMR diagnoses 9 months prior to pregnancy (n, %)			
Hypertension	14 (3.7)	2 (3.2)	0.99
Obesity	39 (10.3)	6 (9.7)	0.99
TBI or head injury	31 (8.2)	6 (9.7)	0.70
Pain non-cancer	160 (42.1)	19 (30.6)	0.08
Sleep disturbance	26 (6.8)	5 (8.1)	0.79
Major depressive disorder	66 (17.4)	13 (21.0)	0.51
PTSD	63 (16.6)	19 (30.6)	0.01*
Schizophrenia or bipolar disorder	9 (2.4)	4 (6.5)	0.10
Anxiety	45 (11.8)	14 (22.6)	0.03*
EMR diagnoses during pregnancy (n, %)			
Hypertension	12 (3.2)	3 (4.8)	0.46
Obesity	29 (7.6)	5 (8.1)	0.99
TBI or head injury	25 (6.6)	4 (6.5)	0.99
Pain non-cancer	143 (37.6)	22 (35.5)	0.78
Sleep disturbance	17 (4.5)	4 (6.5)	0.52
Major depressive disorder	73 (19.2)	15 (24.2)	0.38
PTSD	68 (17.9)	22 (35.5)	0.002*
Schizophrenia or bipolar disorder	8 (2.1)	3 (4.8)	0.19
Anxiety	41 (10.8)	5 (8.1)	0.49
EPDS ≥ 10 (n, %)	90 (23.7)	27 (43.6)	0.001*
Seeing a mental health provider prior to pregnancy (n, %)			
VHA Mental Health Provider	133 (35.0)	25 (40.3)	0.42
External Mental Health Provider	21 (5.5)	5 (8.1)	0.39
Plans to continue seeing ANY mental health provider during pregnancy (n, %)	123	28	0.05*
# of VHA mental health visits during pregnancy (M ± SD, range)	2.6 ± 5.3 (0.0–34.0)	5.3 ± 9.6 (0.0–54.0)	0.04*
Ever counseling/treatment for military sexual trauma (n, %)	96 (25.3)	20 (32.3)	0.25

* $p < 0.05$

†Includes self-reported smoking and/or an EMR diagnosis of alcohol use disorder, drug use disorder, or nicotine dependence during the pregnancy time window

IPV+ group also had higher rates of PTSD and anxiety diagnoses recorded in the EMR in the 9 months prior to pregnancy. During pregnancy, the IPV+ group had higher proportions of women with an EMR diagnosis of PTSD. During pregnancy, women in the IPV+ group were significantly more likely to have an EPDS score ≥ 10 compared to women in the IPV– group (43.6% vs. 23.7%, $p = 0.001$; Table 2).

Results also revealed protective actions among pregnant veterans with past-year IPV. Mental health care utilization during pregnancy was higher among women in the IPV+ group. More women in the IPV+ group reported plans to continue seeing a VHA mental health provider during pregnancy; EMR data indicated that the number of VHA mental

health care visits during pregnancy was indeed significantly higher in the IPV+ group compared to women in the IPV– group (5.3 ± 9.6 visits vs. 2.6 ± 5.3 visits, $p = 0.04$; Table 2).

We included the following significant variables from our bivariate analysis in our multivariable regression model: marital status, seeking social support from a spouse or partner, pregnancy health risk behaviors, any past (self-reported) mental health diagnosis, any MST, EPDS score, and VHA mental health visits during pregnancy. While other variables were significant in bivariate analyses (e.g., current living situation; EMR diagnoses before or during pregnancy), we only included these specific variables to avoid collinearity. After backward selection, our logistic regression indicated that marital status, seeking social support, pregnancy health risk behavior, and prenatal EPDS were the strongest predictors of IPV exposure (E-HITS 7+ vs. E-HITS < 7). Women who were not married (OR 2.7; 95% CI 1.5–5.0), those who did not report seeking social support from a spouse or partner (OR 3.6; 95% CI 1.6–8.2), who engaged in a pregnancy health risk behavior (OR 2.4; 95% CI 1.0–5.6), or had an EPDS score ≥ 10 (OR 2.0; 95% CI 1.1–3.7) were more likely than married women, women who sought partner or spousal social support, women who did not engage in a pregnancy health risk behavior, and women with an EPDS < 10 to have IPV exposure, respectively (data not shown). Similarly, the number of women reporting seeking social support from a spouse or partner during pregnancy was significantly higher among those in the IPV– versus IPV+ group (94.7% vs. 75.8%, $p < 0.0001$).

DISCUSSION

In this national study of pregnant women veterans using VHA health care, a substantial portion (14%) experienced past-year IPV. Past-year IPV was associated with increased health concerns including depression, pregnancy health risk behaviors, and PTSD, warranting additional screening for these issues during the pre- and post-natal periods. That pregnant veterans who experienced IPV in the past year were also more likely to report history of MST, were less likely to be married, and less likely to report seeking support from a spouse or partner indicates potential additional needs such as alternative sources of social support during pregnancy. Taken together, these physical and mental health risks threaten the well-being of perinatal women veterans and their fetuses.

According to a 2019 VHA directive,²⁹ VHA medical facilities are required to implement routine screening for IPV among all women veterans. Although the VHA screens all veterans for depression and PTSD annually, the current findings suggest that pregnancy should prompt a specific assessment of potential IPV-related needs and impacts given the increased health risks of IPV during pregnancy. For women veterans with positive IPV screens, the current findings suggest screening for depression, PTSD, and pregnancy health risk behaviors, each of which is associated with adverse health

outcomes for the woman and developing fetus. Since pregnant veterans receive prenatal care outside VHA, it is also imperative that non-VHA providers are aware of the apparent heightened risk for IPV and consequences. Expanding education to community providers about the unique health care needs of women veterans, including the need for enhanced screening for IPV among pregnant veterans, may help to close this gap. This education could occur through conference trainings, publications, and VHA outreach.

Clinically, these results support efforts towards enhanced IPV prevention and intervention within VHA, and ensuring adequate support and advocacy services for pregnant veterans. Importantly, the majority of pregnant veterans in this sample were receiving VHA care before their pregnancies, giving VHA the opportunity address IPV-related concerns early. Pregnant veterans should be provided with information and support in connecting to pregnancy-related community resources, as well as resources on IPV prevention at the beginning of their pregnancies, to help facilitate access to advocacy and resources. For example, each VHA facility has an Intimate Partner Violence Assistance Program Coordinator who can help connect women to resources such as safety planning, shelters, crisis hotlines, advocacy, and counseling. Early provision of these resources could aid at-risk women in reducing their risk of IPV. Further supporting this notion, research in civilian samples has shown that brief IPV interventions delivered in primary care can improve safety planning, use of IPV-specific resources, and health outcomes.³⁰

Pregnant veterans with a history of past-year IPV reported an average of 2.7 more VHA mental health care visits during pregnancy than pregnant veterans without a history of past-year IPV, indicating that the VHA also provides ongoing care during pregnancy and suggests that VHA may be providing IPV-specific mental health services to those veterans. These results echo past studies which found that women veterans with histories of IPV report greater use of VHA health and mental health care than women veterans without histories of IPV,¹⁷ yet this is the first time this has been reported specifically among pregnant veterans. Although many challenges to continuity of VHA care during pregnancy have been documented in the literature on pregnant veterans,¹⁸ it is encouraging that the high-risk group of pregnant veterans with past-year IPV is making use of mental health care services available to them.

Findings are consistent with prior work showing associations between IPV and depression, PTSD, pregnancy health risk behaviors, and adverse health outcomes among women veterans;^{2, 10} however, the health consequences may be particularly dire for pregnant veterans and their fetuses and could extend to lifetime morbidities for both. For example, both depression and PTSD during pregnancy have been associated with elevated rates of pre-term birth.³¹ Substance abuse during pregnancy frequently co-occurs with depression and PTSD,^{32, 33} and behaviors such as substance abuse have been associated with negative outcomes in infant growth, behavior, and

cognition.³⁴ In addition, psychopathology during pregnancy correlates highly with psychopathology in the postpartum period.³⁵ Thus, women veterans experiencing IPV during pregnancy may be at high risk for mental health difficulties and substance abuse both during and after pregnancy. The extant literature shows these maternal difficulties convey risk of physical and mental health complications to the infant that cascade into adolescence^{36–38} and this may be compounded by IPV. Improving mental health and substance abuse treatment and reducing IPV re-victimization among this particularly vulnerable subpopulation of women veterans holds potential benefits for women veterans and their children.^{39, 40}

The study included several limitations that warrant mention. Our sample included pregnant veterans using VHA maternity benefits who participated in the COMFORT study, which does not necessarily reflect the experiences of the larger population of veterans who use VHA maternity benefits,⁴¹ pregnant veterans who do *not* use VHA maternity benefits, or those who do not use *any* VHA care. The cross-sectional nature of the study inhibits our ability to draw causal connections between the variables. Concerns about stigma and social desirability may have led veterans to under-report their experiences of IPV,⁴² as is a methodological concern in all research on stigmatized life experiences. In addition, we did not assess the context in which IPV occurred, its severity, or impact. The E-HITS measure assesses IPV in the past year; thus, we were unable to differentiate whether the IPV reported occurred prior to pregnancy, during pregnancy, or both.

In conclusion, IPV is a salient health risk for pregnant veterans with the potential to detrimentally affect maternal and fetal health. Future directions include studying the impacts of IPV on women veterans' birth outcomes, infant health, mother-infant bonding, and parenting, to better understand the long-term impact of IPV on women veterans' health. The current results also suggest opportunities for preventing IPV before it occurs. Pregnant veterans experiencing IPV reported seeking VHA mental health treatment at high rates, suggesting that this group is well-connected to VHA resources and thus may be able to receive additional support through VHA. Additional future directions include exploration of the unique factors that increase risk for IPV among reproductive-age women veterans, and best practices for the prevention of IPV victimization or re-victimization among this group. The potential to reduce the negative health impacts of IPV on both women *and* their children represents an incredible opportunity for VHA to intervene in the cycle of violence and morbidity that is often fueled by women's military experiences.

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