



Published in final edited form as:

J Womens Health (Larchmt). 2019 November ; 28(11): 1476–1486. doi:10.1089/jwh.2018.7545.

Intimate Partner Violence Before and During Pregnancy, and Prenatal Counseling Among Women with a Recent Live Birth, United States, 2009–2015

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Abstract

Background: Intimate partner violence (IPV) is a leading cause of injury for reproductive-aged women. Clinical guidelines exist to assist providers in counseling women for IPV, but information on provider counseling among pregnant women from population-based sources is limited.

Materials and Methods: Data for 2009–2015 from 37 states and New York City participating in the Pregnancy Risk Assessment Monitoring System (PRAMS) were analyzed ($n = 258,263$). We compared prevalence estimates overall and by site, of physical IPV occurring before and/or during pregnancy, and prenatal counseling on physical IPV. Multivariable logistic regression was used to identify factors associated with receiving prenatal counseling on physical IPV.

Results: Overall, 3.8% of women reported experiencing any physical IPV in the 12 months before and/or during pregnancy (range: 1.5% [Connecticut] to 7.2% [Mississippi]). Prevalence of prenatal IPV counseling was 51.0% (range: 30.2% [Utah] to 63.1% [New Mexico]). Receipt of prenatal counseling on depression predicted a fourfold increase in prevalence of receiving counseling on physical IPV (adjusted prevalence ratio [aPR] = 4.20, 95% confidence interval [CI]: 4.06–4.34). In addition, non-Hispanic black race versus non-Hispanic white race, and having less than a high school education were associated with higher prevalence of receipt of IPV counseling ([aPR = 1.16, 95% CI: 1.14–1.18] and [aPR = 1.11, 95% CI: 1.08–1.13], respectively).

Conclusion: Almost 4% of women with a recent live birth reported physical IPV before and/or during pregnancy. Only half of women received counseling on IPV during prenatal care, with counseling rates varying widely among states. Increased adherence to guidelines for universal

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Disclaimer

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Author Disclosure Statement

No competing financial interests exist.

screening and counseling of women could ensure all women are offered appropriate support and referral.

Keywords

intimate partner violence; prenatal care; prenatal care counseling; pregnancy

Introduction

Intimate partner violence (IPV) includes physical violence, sexual violence, stalking, and psychological aggression by a current or former intimate partner.¹ IPV remains a major public health problem and is a common cause of injury in women.² In addition, homicide that occurs during battering remains a leading cause of death for women, including those who are pregnant.³ Nearly one-third of all U.S. women report having experienced physical violence by an intimate partner in their lifetime.⁴ Due to underreporting, however, the true prevalence of IPV is unknown.⁵

In addition to acute physical injuries, women exposed to IPV often suffer from chronic conditions, including headaches, pelvic pain, heart palpitations, anxiety, irritable bowel syndrome, and vaginal infections.⁵ IPV also often co-occurs with other risk factors for poor maternal health outcomes, such as smoking,⁶ alcohol and substance abuse,⁷⁻⁹ and depression,^{7,10-12} and has been linked to poor pregnancy weight gain, anemia, placental abruption,⁵ sexually transmitted infections, including HIV,¹³⁻¹⁷ and unintended pregnancy.¹⁸ IPV is associated with adverse infant health outcomes such as fetal injury, low birth weight, and preterm birth.^{5,19} Overall, IPV can have an adverse, long-term impact on maternal and child health, beyond the initial physical and emotional trauma, and should therefore be on the radar of providers who care for pregnant women.

While historically, national public health organizations have endorsed screening for physical and other forms of violence during clinical care,²⁰⁻²² there was a lack of consensus among medical practitioners on appropriateness and effectiveness of universal screening for IPV. Thus, screening practices varied widely.²³

In 2011, the Institute of Medicine issued guidelines around the identification of IPV and recommended “screening and counseling of all women and adolescent girls for interpersonal and domestic violence in a culturally competent manner.” These recommendations were included in the Health Resources and Services Administration (HRSA)’s Women’s Preventive Services Guidelines.²⁴ As a result, starting in 2012, new private health insurance plans were required to cover screening for IPV (in addition to other preventive health services), without cost-sharing.²⁴ Furthermore, in 2013, a systematic review conducted by the United States Preventive Services Task Force (USPSTF) found sufficient evidence to recommend that clinicians routinely screen women of childbearing age for IPV and refer those who screen positive to intervention services.⁵

The review concluded that effective interventions can reduce violence, abuse, and physical or mental harms for women of reproductive age.⁵ In accordance, the American College of Obstetricians and Gynecologists recommends that physicians screen all women for IPV at

periodic intervals, including during obstetric care, that is, at the first prenatal visit, at least once per trimester, and at the postpartum checkup¹⁸; and the American Medical Association states that physicians should routinely inquire about physical, sexual, and psychological abuse as part of the medical history.²⁵

Despite the availability of clinical guidelines on screening for IPV, universal screening is not standard practice among clinicians.^{23,26–31} Previous studies have described IPV screening practices in various clinical settings and subspecialties.^{32–34} Few studies, however, have used population-based data to examine rates of IPV counseling in prenatal care. One study that used multistate data from the Pregnancy Risk Assessment Monitoring System (PRAMS) from 2004 to 2008 to examine the extent to which IPV was discussed during prenatal care, found that about half of the study population reported not having any discussions on IPV with their prenatal care provider.²⁷

This study extends on the prior report by providing current estimates of physical IPV around the time of pregnancy, and prenatal counseling on physical IPV in a large representative sample of postpartum women across 38 participating U.S. sites. It also examines factors associated with receiving counseling for physical IPV in prenatal care to characterize missed opportunities to identify women at risk. Finally, given that several key events with potential to impact the prevalence of receipt of counseling for physical IPV occurred during the period under review,^{5,24} this study also provides an opportunity to examine trends in the prevalence of physical IPV screening against the backdrop of these events.

Materials and Methods

We used PRAMS data from 38 sites*,[†] (37 states and New York City) that participated in 2009–2015, and achieved a weighted response rate in at least 1 year of at least 65% for data collected during 2009–2011, at least 60% for data collected during 2012–2014, and at least 55% for data collected in 2015. PRAMS is a mixed-mode (mail and phone) population-based surveillance system that collects information on select maternal behaviors and experiences before and during pregnancy, and shortly after delivery. Participant responses are weighted to account for nonresponse, non-coverage, and oversampling, and are representative of each participating state's population of women recently delivering a live infant.

During 2009–2015, a total of 258,263 women participated in PRAMS in the 38 sites included in this study. Of these, 11,053 reported experiencing physical IPV before and/or during pregnancy. A total of 3801 women were excluded from the analyses on provider counseling during prenatal care because they had no prenatal care ($n = 3228$), or had missing information on prenatal care entry ($n = 573$), but were included in the overall estimates of physical IPV across sites. Thus, the final sample for analyses on prenatal IPV counseling comprised 254,462 women aged 12–55, with a history of receipt of any prenatal

*AK, AL, AR, CO, CT, DE, GA, HI, IA, IL, LA, ME, MD, MA, MI, MN, MS, MO, NE, NH, NJ, NM, NYC, NY, OH, OK, OR, PA, RI, TN, TX, UT, VA, VT, WA, WV, WI, and WY.

[†]Given that PRAMS surveillance includes New York City, this study will use the terms “site” and “state” interchangeably when referencing the geographic entity from which the sample was drawn.

care. Data from seven states (Illinois, New York, Oregon, Tennessee, Texas, Vermont, and Wyoming) do not contain responses from minors on IPV as any question on abuse is removed from surveys administered to minors in these sites. A detailed description of PRAMS methodology is available elsewhere.³⁵ The Centers for Disease Control and Prevention and local Institutional Review Boards approved the PRAMS protocol; all sites approved the study plan.

Intimate partner violence (IPV; “any physical IPV”) was derived from a response of “Yes” to either or both of two questions: “During the 12 months before you got pregnant with your new baby, did your husband or partner push, hit, slap, kick, choke, or physically hurt you in any other way?” and “During your most recent pregnancy, did your husband or partner push, hit, slap, kick, choke, or physically hurt you in any other way?” Thus, this study’s definition of IPV focuses on only physical violence and not other forms of IPV such as sexual violence, emotional abuse, or stalking, or IPV that may have begun in the postpartum period.

Receipt of provider counseling on physical IPV during prenatal care was measured by the following survey question: “During any of your prenatal care visits, did a doctor, nurse, or other health care worker talk with you about any of the things listed below? Please count only discussions, not reading materials or videos.” Accompanied by a response of “Yes” for the listed item “Physical abuse to women by their husbands or partners?” For the purpose of this study, discussions about IPV with a prenatal care provider will be termed “prenatal counseling on physical IPV.”

Demographic and psychosocial characteristics of interest were selected based on existing literature,^{27,36–39} and obtained from birth certificate variables routinely linked to the PRAMS dataset or from survey data. Information on maternal race/ethnicity, maternal age, marital status, education, and trimester of entry into prenatal care was obtained from the birth certificate, while type of insurance coverage during prenatal care, enrollment in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), family income (calculated as a percentage of the Federal Poverty Level [FPL]), prepregnancy depression diagnosed by a health care professional, receipt of provider counseling on depression, pregnancy intention (unintended defined as pregnancy unwanted or mistimed), alcohol use and cigarette smoking before and/or during pregnancy, and maternal stress items were obtained from PRAMS survey data.

Women were asked about stressful life events they may have experienced in the 12 months before their delivery. From the list of 14 stressors, 7 were chosen for inclusion in this study based on known associations with physical IPV.^{37–39} These are separation or divorce from husband or partner, involvement in a physical fight, husband or partner not wanting the pregnancy, woman or partner going to jail, being homeless, arguing with husband or partner more than usual, and someone close having a problem with drinking or drugs. Finally, to assess differences in prevalence of IPV counseling rates preimplementation and postimplementation of the HRSA women’s preventive services guidelines in 2012, infant year of birth was dichotomized into two time periods: the first comprising years 2009–2011 (pre) and the second comprising years 2013–2015 (post).

SUDAAN version 11.0 software was used to calculate prevalence rates and corresponding 95% confidence intervals (CIs) for indicators of interest. Chi-squared tests were used to test for significant ($p < 0.05$) differences in distribution of aforementioned maternal characteristics among women exposed to physical IPV compared to those who were not, and among women who received provider counseling for physical IPV compared to those who did not. State-based prevalence estimates of any physical IPV and state-based estimates of receiving prenatal counseling on IPV were calculated. The prevalence of receiving prenatal counseling on physical IPV was calculated for each of the maternal characteristics.

Logistic regression was used to assess associations between maternal characteristics (covariates) and receipt of prenatal counseling on physical IPV (outcome) in two steps. First, as PRAMS is a cross-sectional survey, we calculated crude prevalence ratios to examine the association between each covariate and receipt of counseling for physical IPV.⁴⁰ Second, independent variables that were associated with more than a 10% increase in prevalence of the outcome were included in a multivariable model. Adjusted prevalence ratios (aPRs) and 95% CIs were calculated to determine which variables remained significantly associated with the outcome after controlling for the presence of others. Variables that did not remain significantly associated with receipt of counseling for physical IPV after controlling for other covariates were excluded from the final model. Age, which was highly correlated with both education and marital status, was also removed from the final model. Covariates included in the final model were race/ethnicity, income, education, marital status, insurance coverage for prenatal care, enrollment in the WIC program, alcohol use before and/or during pregnancy, and homelessness. Receipt of provider counseling on depression was added to the model to assess if an association exists with receiving provider counseling on physical IPV based on prior literature that shows a low prevalence of depression screening during prenatal care and a high co-occurrence of these conditions.^{41,42} Infant year of birth was added to the model as a continuous variable to test for trends over time in receipt of prenatal counseling for physical IPV.

Results

Higher percentages of those reporting physical IPV, compared with their counterparts, were unmarried (72.6% vs. 37.8%), had prenatal care covered by Medicaid or other publicly-funded sources (72.0% vs. 42.2%), were enrolled in WIC (70.4% vs. 44.5%), 20–29 years of age (61.3% vs. 50.4%), had family income between 0% and 100% of FPL (68.8% vs. 36.5%), had an unintended pregnancy (66.7% vs. 42.1%), smoked cigarettes before and/or during pregnancy (47.9% vs. 21.2%), were non-Hispanic black (22.9% vs. 13.1%), and had a diagnosis of prepregnancy depression (12.2% vs. 5.2%) (Table 1). The overall prevalence of reporting any physical IPV before and/or during pregnancy was 3.8% (Table 2). Among sites, the overall prevalence of any physical IPV ranged from 1.5% in Connecticut to 7.2% in Mississippi (Table 2). The overall prevalence of physical IPV before pregnancy was 3.0% and ranged from 1.3% in Connecticut to 5.6% in Mississippi. The prevalence of physical IPV during pregnancy was slightly lower at 2.6%, ranging from 1.0% in Connecticut to 4.2% in Arkansas.

The prevalence of receiving provider counseling on physical IPV during pregnancy was 51.0% (Fig. 1). Among sites, Utah had the lowest prevalence of prenatal provider counseling on physical IPV, at 30.2%, while prevalence was highest in New Mexico, at 63.1% (Fig. 1). The prevalence of receiving counseling was highest among those who also received prenatal counseling for depression (65.2%), were non-Hispanic black (64.0%), had less than high school education (63.8%), were unmarried (62.3%), and had family income between 0% and 100% of FPL (61.4%) (Table 3). The prevalence of receipt of counseling for physical IPV was higher after implementation of HRSA guidelines on women's preventive services (2013–2015) compared with the earlier time period (51.6% vs. 50.9%, $p < 0.05$) (data not shown).

In the adjusted model, postpartum women who received prenatal counseling for depression, compared to those who did not, had more than four times the prevalence of receiving prenatal counseling on physical IPV (aPR = 4.20, 95% CI: 4.06–4.34) (Table 3). Non-Hispanic black women were also more likely to receive provider counseling (aPR = 1.16, 95% CI: 1.14–1.18) compared to non-Hispanic white women. Other predictors for receipt of prenatal counseling on physical IPV were as follows: enrollment in the WIC program (aPR = 1.11, 95% CI: 1.09–1.13), having less than high school education (aPR = 1.11, 95% CI: 1.08–1.13), having insurance coverage defined as “Other” (aPR = 1.11, 95% CI: 1.08–1.14), and having income between 0% and 100% of FPL (aPR = 1.10, 95% CI: 1.07–1.13). Finally, a small increase in prevalence of provider counseling on physical IPV was detected from 2009 to 2015, but failed to reach a level of significance.

Discussion

This study extends the findings of prior studies that have examined the prevalence of physical IPV around the time of pregnancy,^{38,43,44} by providing more recent data on physical IPV among women with a recent live birth and reporting state-level estimates on the prevalence of prenatal counseling on physical IPV. We found that nearly 4% of postpartum women reported experiencing physical IPV before and/or during pregnancy, a finding that is consistent with other national estimates.²⁷ Some prior studies have shown higher rates of physical IPV around the time of pregnancy^{38,43} depending on the population and type of IPV measured.⁴⁵ Prevalence of physical IPV before and/or during pregnancy varied across states, with ~7% of postpartum women in Mississippi reporting any physical IPV compared with about 2% of postpartum women in Connecticut.

Our study also confirms findings from previous literature regarding characteristics of women with higher prevalence of physical IPV. These include teens and younger women, non-Hispanic black women, unmarried women, those with lower socioeconomic status, and those receiving Medicaid.^{36–38,44}

This study also demonstrates that universal screening for physical IPV in prenatal care is not standard practice. We found that women who were non-Hispanic black, who had lower income, and with lower educational attainment were more likely to receive prenatal counseling on physical IPV compared to their counterparts. This could be due, in part, to physician perceptions regarding risk for IPV. Seminal work by Sugg et al. to identify

primary care providers' barriers in screening and identifying IPV found that providers were less likely to ask about abuse if they identified socioeconomically with the patient.³¹ Most providers surveyed admitted they were more likely to ask about IPV with patients perceived to be of lower socioeconomic status.³¹

We also found that women with Medicaid or other publicly funded insurance, and those with other types of insurance coverage were also more likely to report receiving counseling on physical IPV than were women with private insurance. This variation in receipt of counseling on physical IPV could be mitigated by a health care system-wide approach to preventing IPV, identifying victims, and providing appropriate interventions.²⁷ Offering continuing education and training providers on counseling on IPV could strengthen adherence to screening guidelines by removing barriers to screening such as lack of provider self-efficacy. For example, women who reported receiving counseling on depression had the highest likelihood of reporting receipt of counseling for physical IPV. This result could mean providers who discuss physical IPV with their patients are also willing or able to discuss other "sensitive" topics.⁴¹

Other barriers to IPV screening that have been previously identified include lack of provider time for screening and a lack of clear guidance on screening.^{31,46,47} However, many effective screening tools exist that do not require a lot of time to administer, can be utilized during intake, and can be covered routinely during the visit.^{47,48} Furthermore, clear guidelines on IPV screening have been advanced by leading medical and public health bodies.^{5,18,24,25} The pregnancy and postpartum periods provide clinicians with multiple opportunities to establish trust with patients and elicit willingness to disclose abuse. Studies have shown that while women may not always disclose abuse the first time, most do not consider screening to be offensive or embarrassing.^{49,50} In some cases, newer approaches to screening, such as computerized self-administered screening tools, have been shown to be as effective as in-person screening.⁵¹ However these self-administered tools need further evaluation for accuracy, efficiency, and acceptability.⁵

Prevalence of provider counseling on physical IPV also varied across study sites. Overall, half of postpartum women did not receive provider counseling on physical IPV. The lowest rates were observed in Utah and Arkansas, where over two-thirds of women did not receive counseling on physical IPV, suggesting differences in health care delivery. Changes in health care legislation during the period under study led to an expansion of Medicaid to include women at 138% of FPL,⁵² and mandated coverage of preventive services such as IPV screening without out-of-pocket costs, even for women on private insurance plans.⁵³ However, we found no significant trend in prevalence rates of IPV counseling between 2009 and 2015. These findings are similar to other studies that found low uptake of women's preventive services in general, despite an increase in health care access immediately following changes in the health care legislation.^{26,53,54} One reason for these findings could be that the years of data included in this study were not a sufficient length of time within which to assess effects related to these changes. A prior study conducted using PRAMS data from 2004 to 2008 found prevalence rates for provider counseling on physical IPV similar to this study.²⁷ Thus, further studies are needed, incorporating additional years of data after the changes in health care legislation. Such studies would better assess whether prevalence rates

of provider counseling on IPV have significantly increased over time and if that increase can be ascribed to changes in clinical guidelines pertaining to screening for IPV.

Our findings show that almost half of women who experienced physical violence around the time of pregnancy did not receive counseling for it during prenatal care. Missed opportunities to screen reproductive age women may result in failure to assist those that are at real risk of physical danger to themselves and their unborn infant. Dunn and McCartney²⁸ found that one in six women reported that IPV (of any type) began during pregnancy, and women who experience one episode of violence are likely to experience repeated violence. This “chronicity” of IPV makes it particularly dangerous for pregnant women who are at increased risk for several maternal comorbidities, including vaginal bleeding.⁴³ In addition, these women may face poor pregnancy outcomes such as preterm birth, low birthweight, miscarriage, and stillbirth.^{5,19} In the extreme cases, physical IPV during pregnancy can lead to pregnancy-related homicide.^{55,56} The chronicity of IPV, regardless of type, stresses the importance of applying recommended screening guidelines to all women of reproductive age presenting for care, whether it be in the preconception, pregnancy, or interconception period, to intervene at whatever point in the reproductive cycle that IPV is occurring. The prenatal period, in particular, is a time when women have multiple contacts with the health care system and provides several opportunities for physicians to intervene if necessary. In its systematic evidence review on screening for IPV, the USPSTF concluded that effective interventions can reduce physical violence and mental abuse among women of reproductive age.⁵

One strength of this study is its large representative population-based sample of recently pregnant women, providing reliable and stable estimates of the study outcomes. In addition, we were able to examine rates of physical IPV in the period around pregnancy when women are in regular contact with the health care system, thus providing an understanding of missed opportunities for intervention in this vulnerable population.

Among the limitations of this study is the possibility of reporting bias around receipt of provider counseling during prenatal care, given that data are collected 2–6 months postpartum. In addition, physical IPV may have been underestimated due to several factors. First, women with physical IPV exposure may be unwilling to disclose physical IPV because of shame or fear. Second, the IPV questions analyzed measured only physical abuse and did not take into account other forms of IPV, including emotional and sexual abuse, or reproductive coercion where a woman is forced to have, continue, or discontinue a pregnancy against her wishes. Nor do we report on abuse from former partners or spouses, only those who are involved in the current pregnancy. Third, these estimates do not represent the effects of physical IPV during pregnancy, resulting in outcomes other than live births such as miscarriage, stillbirth, or maternal death, which are not included in the PRAMS sample. Last, this study may not truly represent the prevalence of physical IPV among teens—a high-risk group for IPV—given that several study sites do not collect abuse data from minors. Finally, as PRAMS data do not distinguish between screening for physical IPV and counseling on physical IPV, our measure of prenatal counseling on physical IPV may not adequately capture screening for physical IPV.

Conclusion

This study confirms previous research that has shown that prenatal counseling on physical IPV is still far from universal, representing missed opportunities to link victims to needed services. Incorporating recommended IPV screening and counseling as a part of routine clinical practice for all women of reproductive age can help to ensure that those in need receive assistance. It is important to continue to facilitate provider training, and standardize quality care in health systems. Future research should include measures to distinguish between screening and counseling for those screened positive, to better assess receipt of needed services. IPV is preventable. A technical package recently published by the Centers for Disease Control and Prevention compiles the best available evidence for prevention of IPV.⁵⁷ These evidence-based strategies and approaches, coupled with screening for past and or current IPV, can have a lasting impact on rates of IPV.

Acknowledgments

Brian Morrow, MA, Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. PRAMS Working Group: Alabama—Izza Afgan, MPH; Alaska—Kathy Perham-Hester, MS, MPH; Arkansas—Mary McGehee, PhD; Colorado—Rickey Tolliver, MPH; Connecticut—Jennifer Morin, MPH; Delaware—George Yocher, MS; Florida—Elizabeth C. Stewart, MSPH; Georgia—Florence A. Kanu, MPH; Hawaii—Matt Shim, PhD, MPH; Illinois—Patricia Kloppenburg, MT (ASCP), MPH; Iowa—Jessica Egan; Kentucky—Tracey D. Jewell, MPH; Louisiana—Rosaria Trichilo, MPH; Maine—Tom Patenaude, MPH; Maryland—Laurie Kettinger, MS; Massachusetts—Emily Lu, MPH; Michigan—Peterson Haak; Minnesota—Mira Grice Sheff, PhD, MS; Mississippi—Brenda Hughes, MPPA; Missouri—David McBride, PhD; Montana—Emily Healy, MS; Nebraska—Jessica Seberger; New Hampshire—David J. Laflamme, PhD, MPH; New Jersey—Sharon Smith Cooley, MPH; New Mexico—Oralia Flores; New York State—Anne Radigan; New York City—Pricila Mullachery, MPH; North Carolina—Kathleen Jones-Vessey, MS; North Dakota—Grace Njau, MPH; Ohio—Connie Geidenberger, PhD; Oklahoma—Ayesha Lampkins, MPH, CHES; Oregon—Claudia W. Bingham, MPH; Pennsylvania—Tony Norwood; Rhode Island—Karine Tolentino Monteiro, MPH; South Carolina—Kristin Simpson, MSW, MPA; Texas—Tanya Guthrie, PhD; Tennessee—Ramona Lainhart, PhD; Utah—Nicole Stone; Vermont—Peggy Brozicevic; Virginia—Sara Varner, MPH; Washington—Linda Lohdefinck; West Virginia—Melissa Baker, MA; Wisconsin—Christopher Huard; Wyoming—Lorie Chesnut, PhD.

Funding Information

No funding was received for this article.

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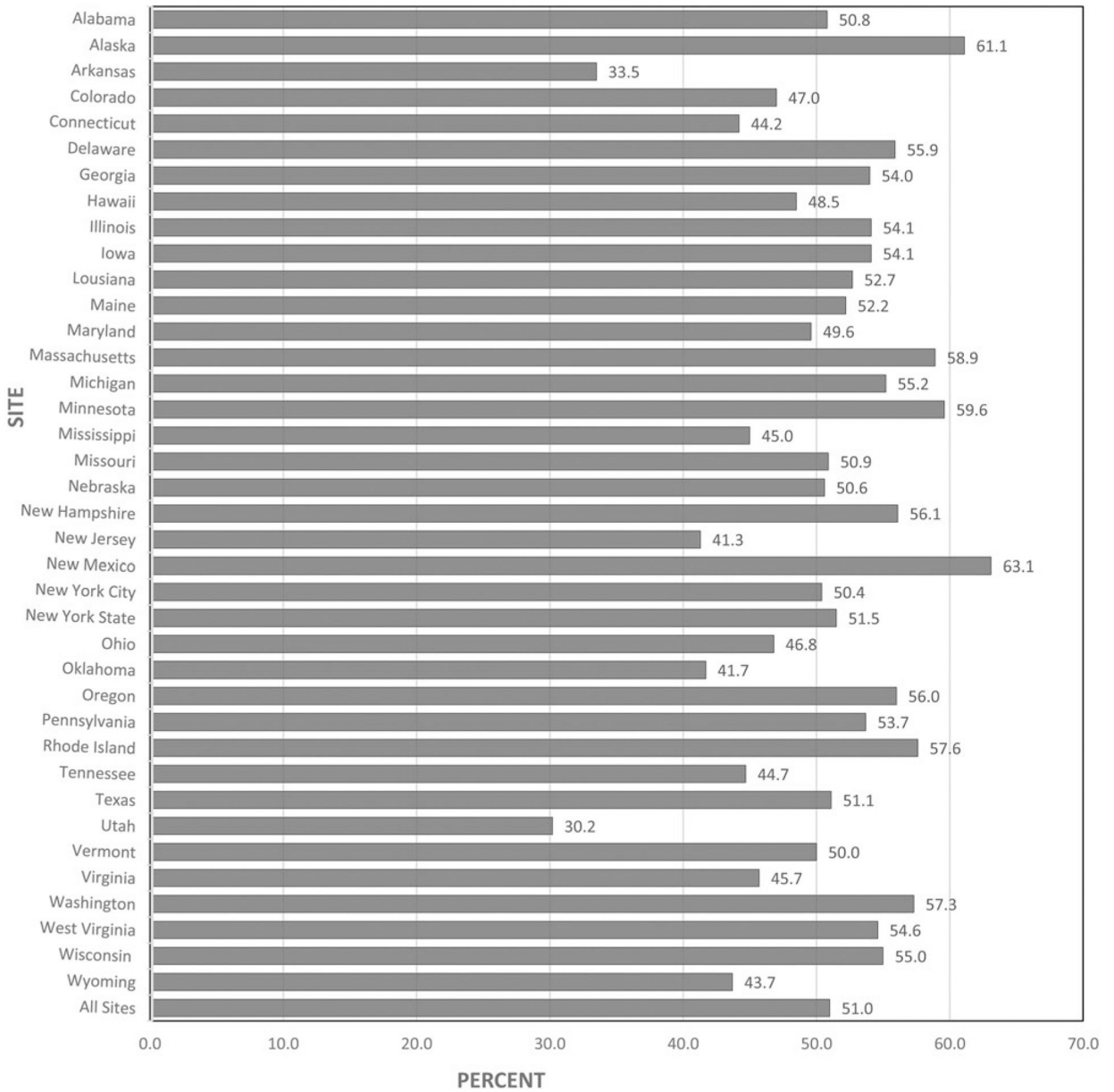


FIG. 1. Prevalence of prenatal care provider counseling on physical IPV^a among women with a recent live birth in 38 PRAMS sites, 2009–2015.^b ^aPhysical IPV exposure: derived from a response of “Yes” to either of two questions that asked if the respondent had been pushed, hit, slapped, kicked, choked, or physically hurt in any way in the 12 months before pregnancy or during pregnancy by a husband or partner. ^bNot all sites had data in all years. Only data that met the response rate threshold for that year were included in the analysis. IPV, intimate partner violence; PRAMS, Pregnancy Risk Assessment Monitoring System.

Table 1. Maternal Characteristics of Women with Physical Intimate Partner Violence Exposure Versus Those Without Physical Intimate Partner Violence Exposure in 38 Pregnancy Risk Assessment Monitoring System Sites, 2009–2015

Maternal characteristics	IPV exposed				p ^a		
	Yes		No				
	N	%	95% CI	N	%	95% CI	
Received IPV counseling							
Yes	5950	52.9	(51.2–54.7)	125,877	51.1	(50.7–51.4)	<0.05
No	4725	47.1	(45.4–48.8)	114,562	48.9	(48.6–49.3)	
Maternal age (years)							
<20	1548	14.2	(13.0–15.5)	18,954	7.3	(7.1–7.4)	<0.01
20–29	6724	61.3	(59.6–63.0)	124,327	50.4	(50.1–51.1)	
(30)	2781	24.5	(23.1–25.9)	103,929	42.4	(42.1–42.7)	
Maternal race							
Non-Hispanic white	4509	48.2	(46.2–50.1)	128,391	59.7	(59.5–60.0)	<0.01
Non-Hispanic black	2815	22.9	(21.3–24.4)	38,411	13.1	(12.9–13.3)	
Other	3567	28.9	(27.2–30.6)	76,942	27.1	(27.0–27.4)	
Household income (Federal Poverty Rate)							
0%–100%	7314	68.8	(67.2–70.4)	87,499	36.5	(36.1–36.8)	<0.01
101%–200%	1788	18.1	(16.8–19.5)	48,629	20.8	(20.5–21.1)	
201%–300%	407	3.9	(3.4–4.6)	20,328	8.5	(8.4–8.7)	
>300%	771	9.2	(8.3–10.2)	69,966	34.2	(33.9–34.5)	
Maternal education							
Less than high school	2506	22.6	(21.1–24.1)	37,262	16.0	(15.0–15.5)	<0.01
High school	3856	36.6	(34.9–38.3)	62,141	24.7	(24.3–24.8)	
Greater than high school	4537	40.9	(39.2–42.5)	144,838	59.2	(59.9–60.5)	
Marital status							
Married	2978	27.4	(26.0–29.0)	149,950	62.2	(61.9–62.5)	<0.01
Other	8038	72.6	(71.0–74.0)	96,644	37.8	(37.5–38.1)	
Pregnancy intention							
Intended	3571	33.3	(31.7–35.0)	138,264	57.9	(57.6–58.2)	<0.01

Maternal characteristics	IPV exposed						p ^a
	Yes			No			
	N	%	95% CI	N	%	95% CI	
Unintended ^b	7264	66.7	(65.1–68.3)	103,987	42.1	(41.8–42.4)	
Trimester entry into PNC							
First trimester	7917	71.9	(69.6–72.7)	203,109	81.7	(81.5–82.0)	<0.01
Second trimester	2342	22.0	(20.6–23.4)	34,246	14.2	(14.0–14.5)	
Third trimester	498	5.1	(4.3–5.9)	6350	2.9	(2.8–3.0)	
No PNC	271	1.8	(1.4–2.3)	2957	1.2	(1.1–1.3)	
Enrolled in WIC program							
Yes	7934	70.4	(68.8–71.9)	114,654	44.5	(44.2–44.8)	<0.01
No	3022	29.7	(28.1–31.2)	129,488	55.2	(55.2–55.8)	
Insurance coverage							
Private/HMO	1742	18.1	(16.8–19.3)	109,450	47.7	(47.4–48.1)	<0.01
Medicaid or other publicly funded	7932	72.0	(70.4–73.5)	108,217	42.2	(41.9–42.5)	
Other	707	7.4	(6.5–8.5)	16,768	7.1	(6.9–7.3)	
None	303	2.6	(2.1–3.2)	7125	3.0	(2.9–3.1)	
Alcohol use before and/or during pregnancy							
Yes	6660	61.8	(60.1–63.4)	128,129	54.4	(54.1–54.8)	<0.01
No	4245	38.2	(36.6–39.9)	114,691	45.6	(45.2–45.9)	
Cigarette smoking before and/or during pregnancy							
Yes	5639	47.9	(46.2–49.6)	56,560	21.2	(20.9–21.5)	<0.01
No	5294	52.1	(50.4–53.8)	186,883	78.9	(78.5–79.1)	
Pre-pregnancy depression diagnosed ^c							
Yes	1505	12.2	(11.2–13.3)	13,993	5.2	(5.1–5.3)	<0.01
No	9548	87.8	(86.7–88.8)	233,217	94.8	(94.7–94.4)	
Stressful life events							
Was in a physical fight ^d	2367	39.4	(37.01–41.8)	2360	2.0	(1.9–2.2)	<0.01
Husband/partner did not want pregnancy	3526	30.6	(30.0–33.1)	16,065	6.4	(6.2–6.5)	<0.01
Got separated or divorced	4130	36.3	(34.7–37.9)	16,342	6.3	(6.1–6.5)	<0.01
Husband/partner or self in jail	2910	24.5	(23.0–25.9)	8610	3.1	(2.9–3.2)	<0.01
Someone close had problem with drinking or drugs	5086	43.1	(41.4–44.8)	27,650	10.4	(10.2–10.6)	<0.01

<i>Maternal characteristics</i>	<i>IPV exposed</i>				<i>p^a</i>
	<i>Yes</i>		<i>No</i>		
	<i>N</i>	<i>%</i> , <i>95% CI</i>	<i>N</i>	<i>%</i> , <i>95% CI</i>	
Argued with husband/partner more than usual	8152	73.7 (72.3–75.2)	51,745	20.5 (20.2–20.8)	<0.01
Was homeless	1714	14.4 (13.2–15.6)	6515	2.5 (2.4–2.6)	<0.01

Physical IPV exposure: derived from a response of “Yes” to either of two questions that asked if the respondent had been pushed, hit, slapped, kicked, choked, or physically hurt in any way in the 12 months before pregnancy or during pregnancy by a husband or partner.

^aChi-squared testing comparing women exposed to physical IPV before and/or during pregnancy to those who were not.

^bUnintended pregnancy was derived from responses of “I wanted to be pregnant later,” “I did not want to be pregnant then or at any time in the future,” or “I wasn’t sure what I wanted,” to a question that asked how the respondent felt about becoming pregnant shortly before she got pregnant.

^cIncluded only on 2012–2015 (Phase 7) surveys.

^dIncluded only on 2009–2011 (Phase 6) surveys.

CI, confidence interval; HMO, Health Maintenance Organization; IPV, intimate partner violence; PNC, prenatal care; WIC, the Special Supplemental Nutrition Program for Women, Infants, and Children.

Table 2. Prevalence of Reported Physical Intimate Partner Violence Before and/or During Pregnancy Among Women with a Recent Live Birth in 38 Pregnancy Risk Assessment Monitoring System Sites, 2009–2015

State	Any IPV—before or during pregnancy				IPV before pregnancy only				IPV during pregnancy only			
	Total	N	%	95% CI	Total	N	%	95% CI	Total	N	%	95% CI
All	258,263	11,053	3.8	3.7–4.0	253,576	8695	3.0	2.9–3.1	253,797	7346	2.6	2.5–2.7
Alabama	1749	62	3.9	3.0–4.9	1714	50	3.1	2.4–4.1	1712	47	3.0	2.2–4.0
Alaska	7070	352	4.3	3.8–4.9	6943	282	3.6	3.1–4.1	6944	236	2.9	2.5–3.4
Arkansas	5629	401	6.5	5.6–7.6	5577	340	5.4	4.6–6.4	5573	253	4.2	3.5–5.1
Colorado	10,400	383	3.3	2.9–3.8	10,348	287	2.6	2.2–3.0	10,349	242	2.1	1.7–2.5
Connecticut	1261	27	1.5	1.0–2.3	1252	23	1.3	0.8–2.1	1250	18	1.0	0.6–1.7
Delaware	7168	367	5.1	4.6–5.6	7098	290	4.1	3.6–4.6	7113	243	3.4	3.0–3.9
Georgia	5447	196	3.5	2.8–4.4	5408	160	2.8	2.2–3.7	5395	134	2.4	1.8–3.2
Hawaii	10,307	376	3.6	3.1–4.1	10,177	301	2.8	2.4–3.3	10,180	249	2.5	2.1–2.9
Illinois	10,054	308	3.1	2.7–3.5	9746	234	2.5	2.2–2.9	9787	199	2.1	1.8–2.4
Iowa	3412	150	3.6	2.7–4.7	3367	114	2.9	2.1–4.0	3367	109	2.2	1.6–3.1
Louisiana	1902	85	4.1	3.0–5.6	1894	61	3.3	2.3–4.7	1896	58	2.6	1.7–3.8
Maine	5732	229	3.5	3.0–4.2	5713	187	2.8	2.3–3.4	5706	146	2.3	1.9–2.8
Maryland	9429	353	3.9	3.4–4.5	9283	264	3.0	2.6–3.6	9298	231	2.5	2.1–3.0
Massachusetts	10,393	300	2.6	2.2–3.0	10,176	230	2.0	1.7–2.4	10,238	205	1.7	1.4–2.0
Michigan	10,344	551	4.4	4.0–4.9	10,208	409	3.3	2.9–3.7	10,204	398	3.2	2.8–3.7
Minnesota	6406	287	3.4	2.7–3.6	6337	233	2.8	2.3–3.2	6332	171	1.7	1.4–2.0
Mississippi	1406	114	7.2	5.8–9.1	1402	93	5.6	4.3–7.3	1400	69	4.1	3.0–5.5
Missouri	8488	416	4.6	4.1–5.2	8429	336	3.7	3.3–4.3	8426	264	2.9	2.5–3.4
Nebraska	10,976	462	3.7	3.3–4.1	10,820	372	3.0	2.6–3.4	10,865	312	2.4	2.1–2.8
New Hampshire	1885	53	2.4	1.7–3.4	1863	47	2.2	1.5–3.1	1865	38	1.3	0.9–2.1
New Jersey	7714	322	3.3	2.9–3.8	7601	259	2.7	2.3–3.1	7624	210	2.2	1.9–2.6
New Mexico	6838	311	4.6	4.1–5.1	6756	252	3.8	3.3–4.3	6758	211	3.0	2.6–3.4
New York City	8578	276	3.4	2.9–3.9	8426	201	2.6	2.2–3.1	8422	189	2.4	2.1–2.9
New York ^a	5182	220	3.9	3.3–4.7	5125	171	3.1	2.5–3.8	5145	148	2.6	2.1–3.3
Ohio	5918	282	5.0	4.3–5.8	5853	209	3.9	3.2–4.7	5854	190	3.5	2.9–4.2

State	Any IPV—before or during pregnancy			IPV before pregnancy only			IPV during pregnancy only		
	Total	N	%	Total	N	%	Total	N	%
Oklahoma	13,581	724	5.7	13,508	576	4.5	13,508	464	3.8
Oregon	8972	334	2.6	8183	267	2.2	8182	216	1.9
Pennsylvania	7255	297	4.0	7197	227	3.0	7197	204	2.8
Rhode Island	7470	254	3.3	7341	191	2.5	7341	176	2.2
Tennessee	3126	157	4.4	3014	26	3.3	3015	104	3.2
Texas	4613	243	4.5	4360	182	3.6	4356	164	3.1
Utah	10,442	301	2.4	10,283	231	1.8	10,330	208	1.7
Vermont	6163	207	3.5	5841	171	3.1	5838	128	2.2
Virginia	717	20	2.6	708	15	1.8	708	15	2.3
Washington	8818	331	2.9	8730	267	2.4	8723	221	1.9
West Virginia	9764	574	5.0	9702	463	3.9	9703	355	3.1
Wisconsin	8605	509	3.5	8333	400	2.7	8329	373	2.4
Wyoming	5019	218	3.7	4860	165	2.9	4864	148	2.5

Physical IPV exposure: derived from a response of “Yes” to either of two questions that asked if the respondent had been pushed, hit, slapped, kicked, choked, or physically hurt in any way in the 12 months before pregnancy or during pregnancy by a husband or partner.

^aNew York State, not including New York City.

Table 3. Associations Between Selected Maternal Characteristics and Receiving Prenatal Counseling for Physical Intimate Partner Violence Among Women with a Recent Live Birth in 38 Pregnancy Risk Assessment Monitoring System Sites, 2009–2015, *N* = 254,462

Maternal characteristics	Prevalence of receiving counseling for IPV % (95% CI)	Unadjusted prevalence ratio (95% CI)	Adjusted prevalence ratio ^a (95% CI)
Maternal race			
Non-Hispanic white	45.4 (45.0–45.8)	Ref.	Ref.
Non-Hispanic black	64.0 (63.1–64.8)	1.41 (1.39–1.43)	1.16 (1.14–1.18)
Other	57.1 (56.4–57.8)	1.26 (1.24–0.28)	1.11 (1.09–1.13)
Household income (Federal Poverty Rate)			
0%–100%	61.4 (60.8–62.0)	1.61 (1.58–1.64)	1.10 (1.07–1.13)
101%–200%	52.2 (51.4–52.9)	1.37 (1.34–1.39)	1.07 (1.05–1.09)
201%–300%	44.6 (43.5–45.7)	1.17 (1.14–1.20)	1.03 (1.01–1.06)
>300%	38.2 (37.7–38.7)	Ref.	Ref.
Maternal education			
Less than high school	63.8 (62.9–64.7)	1.44 (1.41–1.46)	1.11 (1.08–1.13)
High school	59.2 (58.5–59.9)	1.33 (1.32–1.35)	1.08 (1.07–1.10)
Greater than high school	44.4 (44.0–44.8)	Ref.	Ref.
Marital status			
Married	43.9 (43.5–44.3)	Ref.	Ref.
Unmarried	62.3 (61.8–62.9)	1.42 (1.40–1.44)	1.07 (1.06–1.09)
Insurance coverage			
Private/HMO	40.7 (40.2–41.1)	Ref.	Ref.
Medicaid or other publicly funded	61.3 (60.8–61.8)	1.51 (1.49–1.53)	1.08 (1.05–1.10)
Other	57.9 (56.5–59.3)	1.42 (1.39–1.46)	1.11 (1.08–1.14)
None	48.8 (46.7–51.0)	1.20 (1.15–1.26)	1.01 (0.97–1.06)
Enrolled in WIC program			
No	41.6 (41.2–42.0)	Ref.	Ref.
Yes	62.3 (61.8–62.8)	1.50 (1.48–1.52)	1.11 (1.09–1.13)
Was homeless			
No	50.5 (50.2–50.9)	Ref.	Ref.
Yes	63.1 (61.0–65.1)	1.25 (1.21–1.29)	0.97 (0.93–1.00)

Maternal characteristics	Prevalence of receiving counseling for IPV % (95% CI)	Unadjusted prevalence ratio (95% CI)	Adjusted prevalence ratio ^a (95% CI)
Alcohol use before and/or during pregnancy			
No	55.4 (54.9–55.9)	1.17 (1.16–1.19)	1.06 (1.04–1.07)
Yes	47.3 (46.9–47.7)	Ref.	Ref.
Received PNC counseling on depression			
No	14.0 (13.6–14.4)	Ref.	Ref.
Yes	65.2 (64.9–65.6)	4.66 (4.52–4.82)	4.20 (4.06–4.34)

Physical IPV exposure: derived from a response of “Yes” to either or both of two questions that asked if the respondent had been pushed, hit, slapped, kicked, choked, or physically hurt in any way in the 12 months before pregnancy or during pregnancy by a husband or partner. Sites refer to 37 U.S. states and New York City. Analyses were adjusted for infant year of birth to assess differences in trends over time for receipt of counseling on physical IPV.

Bold values indicate a statistically significant association.

^aFrom the study sample, a total of 217,652 women were included in this model after exclusion of women with missing information for any covariates.