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Physical Intimate Partner Violence and Increased Partner Aggression During Pregnancy During the COVID-19 Pandemic: Results From the Pregnancy Risk Assessment Monitoring System

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Abstract

Objectives: Public health emergencies can elevate the risk for intimate partner violence (IPV). Our objectives were 2-fold: first, to assess the prevalence of physical IPV and increased aggression from a husband or partner that occurred during pregnancy and was perceived to be due to the COVID-19 pandemic; second, to examine associations between these experiences and (1) COVID-19–related stressors and (2) postpartum outcomes.

Methods: We used data from the Pregnancy Risk Assessment Monitoring System that were collected in 29 US jurisdictions among individuals with a live birth in 2020. We estimated the prevalence of violence during pregnancy by demographic characteristics and COVID-19–related stressors. We calculated adjusted prevalence ratios (APRs) to examine associations of physical

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IPV or increased aggression with COVID-19–related stressors, postpartum outcomes, and infant birth outcomes.

Results: Among 14 154 respondents, 1.6% reported physical IPV during pregnancy, and 3.1% reported increased aggression by a husband or partner due to the COVID-19 pandemic. Respondents experiencing any economic, housing, or childcare COVID-19–related stressors reported approximately twice the prevalence of both types of violence as compared with those without COVID-19–related stressors. Physical IPV and increased aggression were associated with a higher prevalence of postpartum depressive symptoms (APRs, 1.73 and 2.28, respectively) and postpartum cigarette smoking (APRs, 1.74 and 2.19). Physical IPV was associated with a lower prevalence of attending postpartum care visits (APR, 1.84).

Conclusions: Our findings support the need for ongoing efforts to prevent IPV during pregnancy and to ensure the availability of resources during public health emergencies.

Keywords

COVID-19 pandemic; intimate partner violence; pregnancy; stress; PRAMS

Intimate partner violence (IPV) during pregnancy, including physical, sexual, and psychological violence, is a public health problem that can have cascading detrimental effects on the health of IPV survivors and their infants.^{1,2} The consequences can be severe. Trauma resulting from physical violence during pregnancy can cause obstetric complications and injury or death to the pregnant individual, infant, or both.^{3–5} In addition, experiencing emotional, sexual, or physical violence during pregnancy has been associated with substance use, depression, anxiety, and other mental health issues that can have lifelong effects on health.^{3,6,7}

Public health emergencies such as the COVID-19 pandemic elevate the risk for IPV and create unique challenges for those who are pregnant and postpartum.⁸ While social distancing and other mitigation measures may be necessary during a public health emergency, some strategies may have unintended negative consequences.⁹ For example, early response measures to the COVID-19 pandemic, such as stay-at-home orders, were associated with increases in IPV.^{9,10}

Likewise, social stressors induced by the COVID-19 pandemic (economic, housing, and food insecurity) have been associated with increases in interpersonal violence.⁹ A systematic review of 15 studies published in 2020 examined the social consequences of mass quarantine for 6 worldwide out-breaks, including COVID-19, and identified psychological distress, food insecurity, economic challenges, and gender-based violence among the negative consequences of quarantines.¹¹ A systematic review of 18 studies specific to the COVID-19 pandemic found an increase in reports of domestic violence in response to stay-at-home or lockdown orders,¹⁰ and a review of 24 studies revealed that key factors contributing to increases in IPV during the pandemic were low socioeconomic status, unemployment, overcrowding, family mental illness, and personal or familial COVID-19 diagnosis.⁹ Several studies identified pregnant women among the groups at elevated risk for IPV and certain types of insecurity, including housing insecurity, during the pandemic.^{12,13}

While emerging literature has examined the effect of COVID-19 quarantine measures and COVID-19–related stressors on IPV, few studies have examined the COVID-19–related stressors around the time of pregnancy and their effect on postpartum outcomes. We examined experiences of IPV among individuals who gave birth to a live-born infant in the latter part of 2020 in 29 states and jurisdictions in the United States. Our objectives were to (1) estimate the prevalence of physical IPV during pregnancy and increases in physical, sexual, or emotional aggression by a husband or partner due to the COVID-19 pandemic; (2) examine the association between physical IPV and increased aggression, separately, and COVID-19–related stressors; and (3) examine associations between physical IPV and increased aggression, separately, and postpartum health conditions, behaviors, and infant health outcomes.

Methods

We analyzed 2020 data from the Pregnancy Risk Assessment Monitoring System (PRAMS).¹⁴ We included data from 29 PRAMS jurisdictions that implemented a questionnaire supplement on COVID-19 experiences at the end of the regular PRAMS surveys for individuals who gave birth to a live-born infant primarily from June through December 2020 (70 respondents [$<1\%$] in Puerto Rico had births between April 1 and May 31). Jurisdictions that achieved a response rate $\geq 50\%$ were included in the analyses (Alaska, Arizona, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Jersey, New York City, North Dakota, Oregon, Pennsylvania, Puerto Rico, South Dakota, Tennessee, Utah, Vermont, Virginia, West Virginia, and Wyoming). The sample included 14 154 people with live births in the participating jurisdictions during the study period.

PRAMS is a jurisdiction-specific, population-based surveillance system conducted by the Centers for Disease Control and Prevention in collaboration with state, city, and territorial health departments. Each participating jurisdiction uses a standardized data collection protocol and draws a stratified random sample from birth certificate records every month. Individuals are sampled 2 to 6 months after a live birth and are mailed up to 3 surveys. Mail nonrespondents are contacted to complete the survey by telephone. People who gave birth to singletons, twins, and triplets are included in the sample. Prior to release for analysis, data are weighted to account for the complex survey design of PRAMS. Details of the PRAMS methodology have been described previously.¹⁴ The institutional review boards of the Centers for Disease Control and Prevention and each participating jurisdiction approved the PRAMS surveillance protocol.

The measure of physical IPV was from the PRAMS core survey used by all jurisdictions. The question asked respondents if a current or former husband or partner physically hurt them during their most recent pregnancy. The measure of increased aggression was from a question on the Maternal COVID-19 Experiences supplemental questionnaire that asked respondents if any of the following things happened to them that they perceived to be due to the COVID-19 pandemic: “My husband or partner was more physically, sexually, or emotionally aggressive towards me.”¹⁵

Data on demographic characteristics and infant outcomes were obtained from the linked birth certificate file; information on postpartum health was from the PRAMS questionnaire; and COVID-19–related stressors (economic, housing, food, and childcare challenges; mental health issues; COVID-19 illness) were derived from the Maternal COVID-19 Experiences supplemental questionnaire (Table 1).

We calculated weighted prevalence estimates and 95% CIs for report of experiencing physical IPV during pregnancy or increased aggression by a husband or partner due to the COVID-19 pandemic, by respondent characteristics, COVID-19–related stressors, postpartum health indicators, and infant birth outcomes. To assess differences among those who experienced each outcome, we used the Wald χ^2 test, with $P < .05$ considered significant. For variables that had >2 levels (eg, age, education level), we reviewed 95% CIs of the weighted prevalence to identify those that were nonoverlapping. This typically conservative approach might fail to note differences between estimates more often than formal statistical testing.¹⁶

We totaled the number of COVID-19–related stressors reported (range, 0–7) and grouped individuals by number of stressors experienced (0, 1–2, 3–4, and 5–7) to examine the cumulative impact of stressors on experiencing violence. We looked at the prevalence of reporting physical IPV or increased aggression by race and ethnicity for Hispanic, non-Hispanic Black, and non-Hispanic White respondents by the number of stressors. For this analysis examining the number of stressors, we had insufficient sample size to generate reliable estimates for other racial and ethnic groups.

We calculated adjusted prevalence ratios (APRs) to examine the associations of physical IPV during pregnancy and increased physical, sexual, or emotional aggression from a husband or partner due to the COVID-19 pandemic with (1) COVID-19–related stressors and (2) postpartum health conditions and behaviors and infant birth outcomes. Based on previous literature, multivariable logistic regression models were adjusted for age, race and ethnicity, marital status, health insurance at delivery, and jurisdiction of residence ($P < .05$).¹⁷ All analyses were conducted with SUDAAN version 11.0 (RTI International).

Results

Overall, 1.6% of respondents reported physical IPV during pregnancy, and 3.1% reported increased physical, sexual, or emotional aggression from a husband or partner due to the COVID-19 pandemic (Table 2). The prevalence of physical IPV and aggression was higher among respondents aged 20 to 24 (vs 25) years, among unmarried respondents (vs married respondents), among those with high school education or less (vs more than high school education), and among those who received Medicaid at the time of delivery (vs private health insurance). Non-Hispanic White respondents had a lower prevalence of physical IPV during pregnancy (1.0%; 95% CI, 0.7%–1.4%) than Hispanic respondents (2.2%; 95% CI, 1.6%–3.1%), non-Hispanic Black respondents (3.0%; 95% CI, 2.1%–4.1%), and non-Hispanic American Indian/Alaska Native respondents (4.3%; 95% CI, 2.7%–6.8%). Non-Hispanic White respondents had a lower prevalence of increased intimate partner

aggression (2.4%; 95% CI, 1.8%–3.1%) than non-Hispanic Black respondents (4.8%; 95% CI, 3.7%–6.3%).

As compared with individuals who had an intended pregnancy, those who reported that their pregnancy was unintended or that they were unsure had a higher prevalence of physical IPV during pregnancy (unintended, 3.2% [95% CI, 2.4%–4.3%]; unsure, 2.8% [95% CI, 2.0%–3.9%]) and increased intimate partner aggression (unintended, 5.1% [95% CI, 4.0%–6.5%]; unsure, 5.0% [95% CI, 3.6%–6.9%]) (Table 2). We also found a higher prevalence for physical IPV and increased aggression among respondents who reported (vs did not report) that their partners said that they did not want the pregnancy (physical IPV, 13.1% [95% CI, 9.3%–18.0%]; increased aggression, 19.9% [95% CI, 15.1%–25.8%]).

Except for COVID-19 illness, all COVID-19–related stressors were significantly associated with physical IPV during pregnancy and increased aggression from a husband or partner due to the COVID-19 pandemic (Table 3). The strongest association was with increased verbal conflicts due to COVID-19 (physical IPV: APR, 6.63 [95% CI, 4.23–10.38]; increased aggression: APR, 25.37 [95% CI, 16.76–38.41]). Other stressors strongly associated with physical IPV and increased intimate partner aggression were any mental health stressors (physical IPV: APR, 2.88 [95% CI, 1.78–4.68]; increased aggression: APR, 4.54 [95% CI, 3.04–6.76]) and food insecurity (physical IPV: APR, 2.51 [95% CI, 1.57–4.02]; increased aggression: APR, 3.72 [95% CI, 2.61–5.28]). Respondents who reported any economic problems, any housing instability, or any childcare challenges had approximately 2 to 4 times the prevalence of reporting physical IPV during pregnancy or increased intimate partner aggression as compared with respondents who did not report these stressors.

The report of experiencing physical IPV during pregnancy or increased intimate partner aggression due to the COVID-19 pandemic increased as the number of stressors increased for Hispanic, non-Hispanic Black, and non-Hispanic White respondents (Figure).

For postpartum outcomes, we found significant differences for the prevalence of postpartum depressive symptoms and postpartum smoking by comparing those who experienced physical IPV or increased aggression with those who did not (Table 4). For example, the prevalence of postpartum depressive symptoms was approximately twice as high for those who experienced violence as for those who did not (physical IPV: APR, 1.73 [95% CI, 1.24–2.41]; increased aggression: APR, 2.28 [95% CI, 1.60–3.23]), as was the prevalence of postpartum cigarette smoking (physical IPV: APR, 1.74 [95% CI, 1.07–2.84]; increased aggression: APR, 2.19 [95% CI, 1.47–3.27]). The prevalence of not attending a postpartum checkup was higher for respondents reporting physical IPV during pregnancy (APR, 1.84; 95% CI, 1.10–3.09) but not significantly different for respondents reporting increased aggression. We found no significant differences in breastfeeding or infant birth outcomes for either indicator.

Discussion

Physical IPV during pregnancy and increased intimate partner physical, sexual, or emotional aggression due to the COVID-19 pandemic were both strongly associated with COVID-19–

related stressors and some postpartum outcomes. A study that surveyed women, nonbinary individuals, and transgender people in Michigan during the summer of 2020 found that new experiences of IPV and more severe IPV both increased during the beginning of the pandemic and were more prevalent among pregnant people than among nonpregnant people.¹³

While other studies have found increases in IPV during the pandemic,^{9,10,18} few have examined these experiences during pregnancy. When compared with estimates of IPV during pregnancy before the pandemic, our estimate of 1.6% of respondents experiencing physical IPV during pregnancy was slightly lower than PRAMS estimates from 2016–2019, which ranged from 2.0% to 2.2%.¹⁹ Several factors may be associated with the lower self-report of physical IPV in our study. The jurisdictions in our analysis overlapped with, but were not identical to, those used to calculate earlier estimates. In addition, our sample consisted of individuals who gave birth in the latter part of 2020, all of whom were pregnant during the early stages of the COVID-19 pandemic, when lockdown and quarantine measures were initially put into place. Individuals who were in lockdown situations or experienced other stressors with an abusive partner may have had less opportunity to privately complete the survey, thereby reducing the likelihood of responding affirmatively to questions about violence. Conversely, the lockdowns may have been protective if respondents were separated from abusive partners or if other unmeasured factors reduced exposure during the study period for this population.

Our second measure encompassed sexual or emotional aggression in addition to physical aggression. For this question, respondents were asked if they had experienced increases in any of these types of behavior from a husband or partner that they attributed to the COVID-19 pandemic. The prevalence estimate for this measure was about twice (3.1%) the physical IPV estimate (1.6%). The fact that this indicator captured multiple types of aggression and asked about escalation may explain the higher prevalence as compared with the physical violence indicator.

We found associations between IPV and COVID-19–related stressors. In particular, increased verbal arguments or conflict due to the COVID-19 pandemic showed the strongest association with physical IPV (nearly 5 times higher) and increased aggression (>25 times higher). Numerous studies have identified the role of arguments, jealousy, conflicts, and other situational factors in the perpetration of IPV,^{20–23} and our findings related to increased verbal arguments and conflicts corroborate this phenomenon.

Non-Hispanic American Indian and Alaska Native respondents and non-Hispanic Black respondents had a higher prevalence of reporting physical IPV or increased intimate partner aggression than non-Hispanic White respondents. Higher rates of IPV among American Indian and Alaska Native and Black women as compared with women from other racial and ethnic groups have been documented,²⁴ as have disproportionate rates of the negative health effects of the COVID-19 pandemic on marginalized racial and ethnic groups.^{25,26} Many reports have illuminated the role of underlying structural inequities contributing to the disparities in health outcomes due to the COVID-19 pandemic.²⁷ Structural factors and racism also place individuals from marginalized racial and ethnic groups at greater risk of

experiencing IPV than people in other racial and ethnic groups.^{28,29} These same factors may be underlying drivers for the higher levels of IPV found in our study.

We found that physical IPV during pregnancy and increased aggression were associated with a higher prevalence of postpartum depressive symptoms and postpartum cigarette smoking when compared with the prevalence among people who did not experience these types of violence. Other studies have found a relationship between physical IPV and a higher prevalence of cigarette smoking.^{30–32} A higher prevalence of mental health conditions is also well established among individuals who experience IPV as compared with those who do not.⁷ Our study adds to this evidence by illuminating the association of COVID-19–related stressors and increased aggression during pregnancy on postpartum mental health.

We found an association between physical IPV during pregnancy and lower attendance at postpartum care visits. People experiencing IPV may have difficulty attending health care visits.³³ The COVID-19 pandemic posed numerous additional challenges to health care access with clinic closures and the expansion of new approaches to care, such as telehealth, which may not have been equally accessible for everyone.^{34,35} Nevertheless, postpartum respondents in our study who experienced physical IPV during pregnancy were less likely to attend postpartum check-ups than those who did not report this experience. Screening for IPV is universally recommended, as are referrals to resources and social supports to ensure safety and avoid delayed or missed care.^{36–38} Health care providers and health care systems may consider systematic processes to follow up with patients who miss their initial postpartum checkup, including exploring the use of telehealth as an option for increasing access.

We identified a positive association between the 2 measures of IPV and infant birth outcomes (low birthweight and preterm birth), but neither was significant. Serious consequences of trauma during pregnancy, including physical IPV, can include injury or death to the infant,³⁹ low birthweight, and preterm birth.⁴⁰ However, we did not have information on the severity, timing, or type of physical violence, which may be a reason why we did not see a significant association between physical IPV or increased intimate partner aggression due to the COVID-19 pandemic and infant birth outcomes.

Limitations

This study had several limitations. First, data represent individuals from the 29 jurisdictions in the United States and may not be generalizable beyond these locations. There may be variation in patterns of COVID-19–related stressors and IPV by jurisdiction due to underlying rates of poverty and intensity of the public health response to the pandemic. Second, PRAMS respondents had a recent live birth; as such, these findings do not represent people who experienced other pregnancy outcomes, such as stillbirth. Third, information from the PRAMS survey is self-reported in the postpartum period and may be subject to recall bias and social desirability bias, which may lead to underreporting on sensitive topics such as IPV. Fourth, all the sampled individuals gave birth in the later part of 2020; however, we did not have information on the exact timing of experiences of violence relative to the beginning of the COVID-19 pandemic, nor could we disaggregate the type of increased aggression reported.

Conclusion

Physical IPV and increased physical, sexual, and emotional aggression from a husband or partner due to the COVID-19 pandemic during pregnancy were associated with COVID-19–related stressors for individuals with a recent live birth. This study highlights how these experiences were related to adverse postpartum health experiences, emphasizing the importance of ongoing efforts to prevent IPV and continued research to advance understanding of the ongoing impacts during the postpandemic period. A multisectoral approach incorporating evidence-based strategies that address IPV prevention at the societal, community, relationship, and individual levels may have the greatest impact. Prevention strategies with the best available evidence include teaching relationship skills, strengthening economic supports, and creating protective environments.⁴¹ Health care workers who see postpartum individuals can also play an important role in providing screening and referrals.^{36,37} In addition, understanding how the COVID-19 pandemic contributed to making screening and access to resources difficult and exacerbated risk factors for violence, such as economic and social stressors, can help inform preparedness efforts ahead of future public health emergencies.

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References

1. Leemis RW, Friar N, Khatiwada S, et al. The National Intimate Partner and Sexual Violence Survey: 2016/2017 Report on Intimate Partner Violence. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2022.
2. Donovan BM, Spracklen CN, Schweizer ML, Ryckman KK, Saftlas AF. Intimate partner violence during pregnancy and the risk for adverse infant outcomes: a systematic review and meta-analysis. *BJOG*. 2016;123(8):1289–1299. doi:10.1111/1471-0528.13928 [PubMed: 26956568]
3. Chisholm CA, Bullock L, Ferguson JEJ 2nd. Intimate partner violence and pregnancy: epidemiology and impact. *Am J Obstet Gynecol*. 2017;217(2):141–144. doi:10.1016/j.ajog.2017.05.042 [PubMed: 28551446]
4. Campbell J, Matoff-Stepp S, Velez ML, Cox HH, Laughon K. Pregnancy-associated deaths from homicide, suicide, and drug overdose: review of research and the intersection with intimate partner violence. *J Womens Health (Larchmt)*. 2021;30(2):236–244. doi:10.1089/jwh.2020.8875 [PubMed: 33295844]
5. Pastor-Moreno G, Ruiz-Pérez I, Henares-Montiel J, Petrova D. Intimate partner violence during pregnancy and risk of fetal and neonatal death: a meta-analysis with socioeconomic context indicators. *Am J Obstet Gynecol*. 2020;222(2):123–133.e5. doi:10.1016/j.ajog.2019.07.045 [PubMed: 31394067]

6. Martin SL, Beaumont JL, Kupper LL. Substance use before and during pregnancy: links to intimate partner violence. *Am J Drug Alcohol Abuse*. 2003;29(3):599–617. doi:10.1081/ada-120023461 [PubMed: 14510043]
7. Paulson JL. Intimate partner violence and perinatal post-traumatic stress and depression symptoms: a systematic review of findings in longitudinal studies. *Trauma Violence Abuse*. 2022;23(3):733–747. doi:10.1177/1524838020976098 [PubMed: 33252020]
8. Huldani H, Kamal Abdelbasset W, Abdalkareem Jasim S, et al. Intimate partner violence against pregnant women during the COVID-19 pandemic: a systematic review and meta-analysis. *Women Health*. 2022;62(6):556–564. doi:10.1080/03630242.2022.2096755 [PubMed: 35791678]
9. McNeil A, Hicks L, Yalcinoz-Ucan B, Browne DT. Prevalence and correlates of intimate partner violence during COVID-19: a rapid review. *J Fam Violence*. 2023;38(2):241–261. doi:10.1007/s10896-022-00386-6 [PubMed: 35368512]
10. Piquero AR, Jennings WG, Jemison E, Kaukinen C, Knaul FM. Domestic violence during the COVID-19 pandemic—evidence from a systematic review and meta-analysis. *J Crim Justice*. 2021;74:101806. doi:10.1016/j.jcrimjus.2021.101806 [PubMed: 36281275]
11. Chu IYH, Alam P, Larson HJ, Lin L. Social consequences of mass quarantine during epidemics: a systematic review with implications for the COVID-19 response. *J Travel Med*. 2020;27(7):taaa192. doi:10.1093/jtm/taaa192 [PubMed: 33051660]
12. Fedina L, Peitzmeier SM, Ward MR, Ashwell L, Tolman R, Herrenkohl TI. Associations between intimate partner violence and increased economic insecurity among women and transgender adults during the COVID-19 pandemic. *Psychol Violence*. 2022;13(1):53–63. doi:10.1037/vio0000429
13. Peitzmeier SM, Fedina L, Ashwell L, Herrenkohl TI, Tolman R. Increases in intimate partner violence during COVID-19: prevalence and correlates. *J Interpers Violence*. 2022;37(21–22):NP20482–NP20512. doi:10.1177/08862605211052586 [PubMed: 34866451]
14. Shulman HB, D'Angelo DV, Harrison L, Smith RA, Warner L. The Pregnancy Risk Assessment Monitoring System (PRAMS): overview of design and methodology. *Am J Public Health*. 2018;108(10):1305–1313. doi:10.2105/AJPH.2018.304563 [PubMed: 30138070]
15. Centers for Disease Control and Prevention. PRAMS questionnaires. Updated May 2024. Accessed June 17, 2024. <https://www.cdc.gov/prams/php/questionnaires/index.html>
16. Schenker N, Gentleman JF. On judging the significance of differences by examining the overlap between confidence intervals. *Am Stat*. 2001;55(3):182–186. doi:10.1198/000313001317097960
17. D'Angelo DV, Bombard JM, Lee RD, Kortsmi K, Kapaya M, Fasula A. Prevalence of experiencing physical, emotional, and sexual violence by a current intimate partner during pregnancy: population-based estimates from the Pregnancy Risk Assessment Monitoring System. *J Fam Violence*. 2022;38(1):117–126. doi:10.1007/s10896-022-00356-y [PubMed: 37205924]
18. Moreira DN, Pinto da Costa M. The impact of the COVID-19 pandemic in the precipitation of intimate partner violence. *Int J Law Psychiatry*. 2020;71:101606. doi:10.1016/j.ijlp.2020.101606 [PubMed: 32768122]
19. Centers for Disease Control and Prevention. Selected 2016–2021 maternal and child health (MCH) indicators. Updated May 2024. Accessed June 17, 2024. <https://www.cdc.gov/prams/php/data-research/mch-indicators-by-site.html>
20. Pichon M, Treves-Kagan S, Stern E, Kyegombe N, Stöckl H, Buller AM. A mixed-methods systematic review: infidelity, romantic jealousy and intimate partner violence against women. *Int J Environ Res Public Health*. 2020;17(16):5682. doi:10.3390/ijerph17165682 [PubMed: 32781565]
21. Spencer CM, Stith SM, Cafferky B. What puts individuals at risk for physical intimate partner violence perpetration? A meta-analysis examining risk markers for men and women. *Trauma Violence Abuse*. 2022;23(1):36–51. doi:10.1177/1524838020925776 [PubMed: 32431231]
22. Giordano PC, Copp JE, Longmore MA, Manning WD. Contested domains, verbal “amplifiers,” and intimate partner violence in young adulthood. *Soc Forces*. 2015;94(2):923–951. doi:10.1093/sf/sov055 [PubMed: 26617420]
23. Hardesty JL, Ogolsky BG. A socioecological perspective on intimate partner violence research: a decade in review. *J Marriage Family*. 2020;82(1):454–477. doi:10.1111/jomf.12652

24. Joseph AS. A modern trail of tears: the missing and murdered Indigenous women (MMIW) crisis in the US. *J Forensic Leg Med.* 2021;79:102136. doi:10.1016/j.jflm.2021.102136 [PubMed: 33631709]
25. Kelly LC, Spencer CM, Keilholtz B, McAllister P, Stith SM. Is separate the new equal? A meta-analytic review of correlates of intimate partner violence victimization for Black and White women in the United States. *Fam Process.* 2022;61(4):1473–1488. doi:10.1111/famp.12754 [PubMed: 35075637]
26. Tai DBG, Sia IG, Doubeni CA, Wieland ML. Disproportionate impact of COVID-19 on racial and ethnic minority groups in the United States: a 2021 update. *J Racial Ethn Health Disparities.* 2022;9(6):2334–2339. doi:10.1007/s40615-021-01170-w [PubMed: 34647273]
27. Webb Hooper M, Nápoles AM, Pérez-Stable EJ. COVID-19 and racial/ethnic disparities. *JAMA.* 2020;323(24):2466–2467. doi:10.1001/jama.2020.8598 [PubMed: 32391864]
28. Alcendor DJ. Racial disparities–associated COVID-19 mortality among minority populations in the US. *J Clin Med.* 2020;9(8):2442. doi:10.3390/jcm9082442 [PubMed: 32751633]
29. Al'Uqdah SN, Maxwell C, Hill N. Intimate partner violence in the African American community: risk, theory, and interventions. *J Fam Violence.* 2016;31(7):877–884. doi:10.1007/s10896-016-9819-x
30. Stockman JK, Hayashi H, Campbell JC. Intimate partner violence and its health impact on ethnic minority women. *J Womens Health (Larchmt).* 2015;24(1):62–79. doi:10.1089/jwh.2014.4879 [PubMed: 25551432]
31. Cheng D, Salimi S, Terplan M, Chisolm MS. Intimate partner violence and maternal cigarette smoking before and during pregnancy. *Obstet Gynecol.* 2015;125(2):356–362. doi:10.1097/AOG.0000000000000609 [PubMed: 25568990]
32. Crane CA, Hawes SW, Weinberger AH. Intimate partner violence victimization and cigarette smoking: a meta-analytic review. *Trauma Violence Abuse.* 2013;14(4):305–315. doi:10.1177/1524838013495962 [PubMed: 23878146]
33. Musa A, Chojenta C, Geleto A, Loxton D. The associations between intimate partner violence and maternal health care service utilization: a systematic review and meta-analysis. *BMC Womens Health.* 2019;19(1):36. doi:10.1186/s12905-019-0735-0 [PubMed: 30808353]
34. Fryer K, Delgado A, Foti T, Reid CN, Marshall J. Implementation of obstetric telehealth during COVID-19 and beyond. *Matern Child Health J.* 2020;24(9):1104–1110. doi:10.1007/s10995-020-02967-7 [PubMed: 32564248]
35. Limaye MA, Lantigua-Martinez M, Trostle ME, et al. Differential uptake of telehealth for prenatal care in a large New York City academic obstetrical practice during the COVID-19 pandemic. *Am J Perinatol.* 2021;38(3):304–306. doi:10.1055/s-0040-1721510 [PubMed: 33302308]
36. American College of Obstetricians and Gynecologists. ACOG Committee opinion no. 518: intimate partner violence. *Obstet Gynecol.* 2012;119(2 pt 1):412–417. doi:10.1097/AOG.0b013e318249ff74 [PubMed: 22270317]
37. US Preventive Services Task Force; Curry SJ, Krist AH, Owens DK, et al. Screening for intimate partner violence, elder abuse, and abuse of vulnerable adults: US Preventive Services Task Force final recommendation statement. *JAMA.* 2018;320(16):1678–1687. doi:10.1001/jama.2018.14741 [PubMed: 30357305]
38. Health Resources and Services Administration. Women's preventive services guidelines. Updated March 2024. Accessed June 17, 2024. <https://www.hrsa.gov/womens-guidelines>
39. Petrone P, Jiménez-Morillas P, Axelrad A, Marini CP. Traumatic injuries to the pregnant patient: a critical literature review. *Eur J Trauma Emerg Surg.* 2019;45(3):383–392. doi:10.1007/s00068-017-0839-x [PubMed: 28916875]
40. Berhanie E, Gebregziabher D, Berihu H, Gereziher A, Kidane G. Intimate partner violence during pregnancy and adverse birth outcomes: a case-control study. *Reprod Health.* 2019;16(1):22. doi:10.1186/s12978-019-0670-4 [PubMed: 30803448]
41. Niolon PH, Kearns MC, Dills J, et al. Intimate Partner Violence Prevention Resource for Action. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2017.

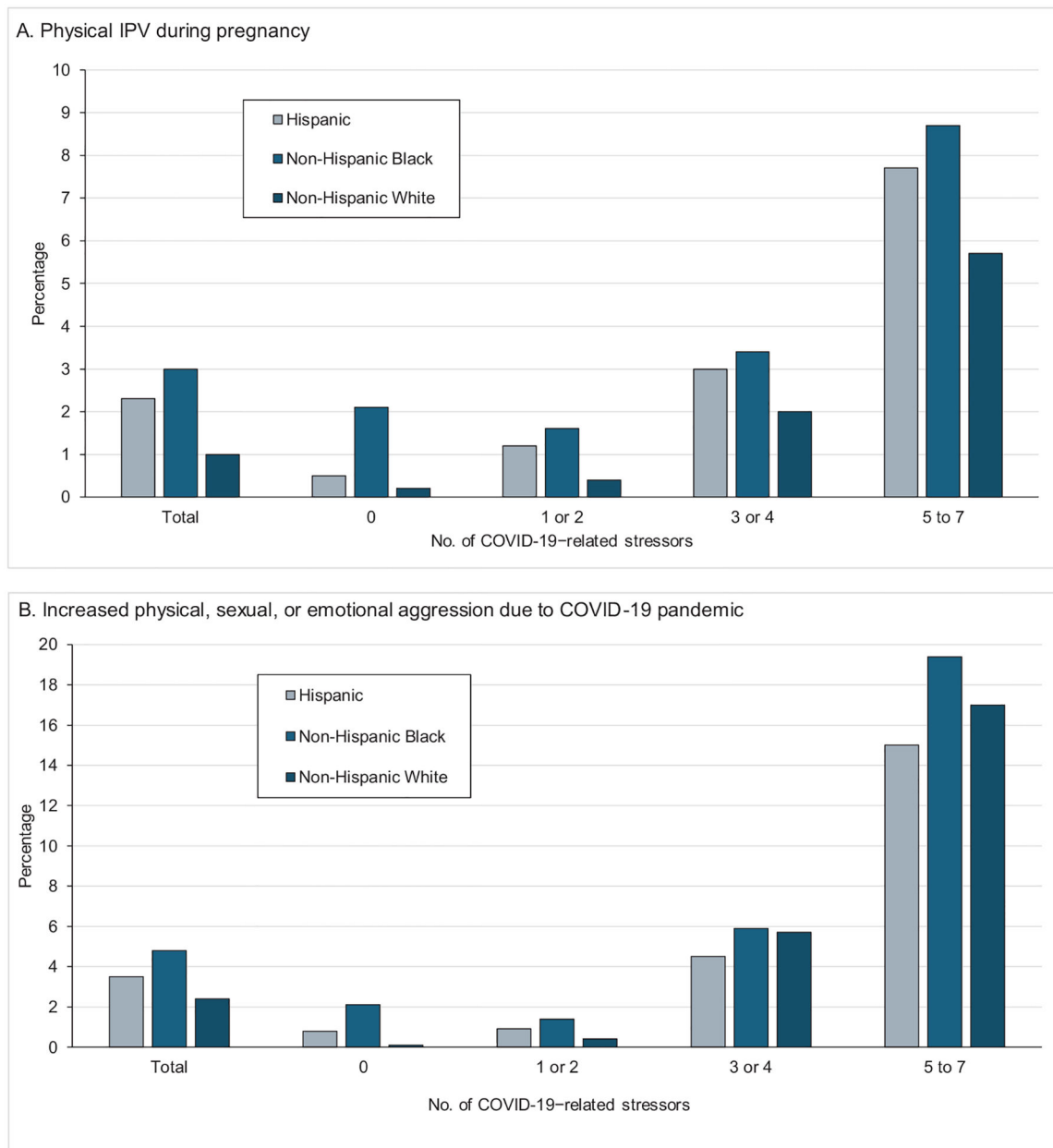


Figure.

Prevalence of experiencing intimate partner violence (IPV) during pregnancy or increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic, by number of COVID-19-related stressors and by race and ethnicity, among individuals with a live birth, Pregnancy Risk Assessment Monitoring System (PRAMS), 2020. Data source: PRAMS.¹⁴ Reported by individuals with a recent live birth (June–December 2020) in 29 sites conducting PRAMS: Alaska, Arizona, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Jersey, New York City, North Dakota,

Oregon, Pennsylvania, Puerto Rico, South Dakota, Tennessee, Utah, Vermont, Virginia, West Virginia, and Wyoming.

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Table 1. Study variables, definitions, and sources for analysis of physical intimate partner violence and increased aggression due to the COVID-19 pandemic: PRAMS, 2020

Source: variable	Definition
Birth certificate	
Low birthweight	<2500 g
Preterm birth	<37 wk completed gestation
Age	Age in years at the time of the delivery as reported on the birth certificate
Race and ethnicity	Race and ethnicity as reported on the birth certificate, categorized as Hispanic of any race and non-Hispanic White, Black, Asian/Pacific Islander, American Indian/Alaska Native, and other race
Marital status	Married or not married; among those not married, acknowledgment of paternity (eg, presence of documentation adding father's name to the birth record)
Education	Years of completed education as reported on the birth certificate, categorized as less than high school, high school graduate, and more than high school
Health insurance at delivery	Type of health insurance that paid for the delivery as reported on the birth certificate, categorized as private, Medicaid, other, or no health insurance
PRAMS core questionnaire ^{1,5}	
Prenatal care initiation	Response to the question: How many weeks or months pregnant were you when you had your first visit for prenatal care? Response options were (1) weeks, (2) months, or (3) I didn't go for prenatal care. Response options were categorized as 13 wk, >13 wk, or none.
Pregnancy intention	Response to the question: Thinking back to just before you got pregnant with your new baby, how did you feel about becoming pregnant? Response options were (1) I wanted to be pregnant later, (2) I wanted to be pregnant sooner, (3) I wanted to be pregnant then, (4) I didn't want to be pregnant then or at any time in the future, (5) I wasn't sure what I wanted. Response options were categorized as "intended" for wanted then or sooner, "unintended" for wanted later or never, and "unsure" for not sure.
Postpartum cigarette smoking	Response of <i>yes</i> to the questions about any smoking in the past 2 y and any smoking "now" at the time of answering the survey.
Postpartum checkup	Response of <i>yes</i> to the question: Since your new baby was born, have you had a postpartum checkup for yourself? A postpartum checkup is the regular checkup a woman has about 4–6 wk after she gives birth.
Ever breastfed	Response of <i>yes</i> to the question: Did you ever breastfeed or pump breast milk to feed your new baby, even for a short period of time?
Physical intimate partner violence during pregnancy	Response of <i>yes</i> to either or both response options—"my husband or partner" or "my ex-husband or ex-partner"—to the question: During your most recent pregnancy, did any of the following people push, hit, slap, kick, choke, or physically hurt you in any other way? For each person, check <i>no</i> if they did not hurt you during this time or <i>yes</i> if they did.
Postpartum depressive symptoms	Response of "always" or "often" to either of the following 2 questions: Since your new baby was born, how often have you felt down, depressed, or hopeless? Since your new baby was born, how often have you had little interest or little pleasure in doing things?
PRAMS standard questionnaire (question P19) ¹⁵	
Partner did not want the pregnancy	Response of <i>yes</i> —My husband or partner said they didn't want me to be pregnant—in response to the following: This question is about things that may have happened during the 12 mo before your new baby was born. For each item, check <i>no</i> if it did not happen to you or <i>yes</i> if it did.
PRAMS Maternal COVID-19 Experiences supplemental questionnaire ¹⁵	
Increased physical, sexual, or emotional aggression due to the COVID-19 pandemic	Response of <i>yes</i> —My husband or partner was more physically, sexually, or emotionally aggressive towards me—in response to the question: Did any of the following things happen to you due to the COVID-19 pandemic?

Source: variable	Definition
COVID-19-related stressors	
Economic	Response of <i>yes</i> to 1 or more of the response options to the question: Did any of the following things happen to you due to the COVID-19 pandemic? (1) I lost my job or had a cut in work hours or pay. (2) Other members of my household lost their jobs or had a cut in work hours or pay. (3) I had problems paying the rent, mortgage, or other bills
Housing	Response of <i>yes</i> to 1 or more of the response options to the question: Did any of the following things happen to you due to the COVID-19 pandemic? (1) I had to move or relocate. (2) I became homeless.
Childcare	Response of <i>yes</i> to 1 or more of the response options to the question: Did any of the following things happen to you due to the COVID-19 pandemic? (1) The loss of childcare or school closures made it difficult to manage all my responsibilities. (2) I had to spend more time than usual taking care of children or other family member.
Food security	Response of <i>yes</i> —I worried whether our food would run out before I got money to buy more—in response to the question: Did any of the following things happen to you due to the COVID-19 pandemic?
Mental health	Response of <i>yes</i> to 1 or more of the response options to the question: Did any of the following things happen to you due to the COVID-19 pandemic? (1) I felt more anxious than usual. (2) I felt more depressed than usual.
Relationship	Response of <i>yes</i> —My husband or partner and I had more verbal arguments or conflicts than usual—in response to the question: Did any of the following things happen to you due to the COVID-19 pandemic?
Illness	Response of <i>yes</i> to either or both response options to the question: While you were pregnant during the COVID-19 pandemic, did you have any of the following experiences? (1) I was told by a health care provider that I had COVID-19. (2) Someone in my household was told by a health care provider that they had COVID-19.

Abbreviation: PRAMS, Pregnancy Risk Assessment Monitoring System.

Table 2.

Prevalence of experiencing physical IPV during pregnancy and increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic: PRAMS,^a 2020^b

Characteristic	No. ^d	Physical IPV during pregnancy ^c		Increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic	
		% ^e (95% CI)	P value ^f	% ^e (95% CI)	P value ^f
Overall	14 154	1.6 (1.3–1.9)	—	3.1 (2.6–3.6)	—
Demographic					
Age, y			.003		.02
<20	458	2.6 (1.3–5.3)		3.3 (1.8–6.0)	
20–24	2343	3.1 (2.2–4.3)		4.9 (3.7–6.5)	
25–34	8044	1.3 (0.9–1.7)		2.7 (2.2–3.3)	
35	2869	1.1 (0.7–1.7)		2.5 (1.8–3.5)	
Race and ethnicity			<.001		.01
Hispanic	3209	2.2 (1.6–3.1)		3.5 (2.7–4.6)	
Non-Hispanic					
American Indian/Alaska Native	465	4.3 (2.7–6.8)		5.2 (2.5–10.4)	
Asian/Pacific Islander	1230	1.3 (0.6–3.0)		3.4 (2.0–5.8)	
Black	2518	3.0 (2.1–4.1)		4.8 (3.7–6.3)	
White	5617	1.0 (0.7–1.4)		2.4 (1.8–3.1)	
Multiple races/other single race	665	1.8 (0.7–4.6)		2.6 (1.3–5.1)	
Marital status			<.001		<.001
Married	8387	0.7 (0.5–1.0)		1.6 (1.2–2.0)	
Not married with AOP	3938	1.8 (1.3–2.6)		4.0 (3.1–5.2)	
Not married without AOP	1405	6.3 (4.6–8.6)		8.8 (6.5–11.9)	
Education			<.001		<.001
<High school diploma	1652	3.2 (2.1–4.9)		4.2 (3.0–6.0)	
High school graduate	3517	2.1 (1.6–2.9)		4.8 (3.8–6.2)	
>High school graduate	8865	1.1 (0.8–1.5)		2.2 (1.7–2.7)	
Health care					
Health insurance at delivery			<.001		<.001
Private	7265	0.6 (0.4–1.0)		1.7 (1.3–2.3)	

Characteristic	Physical IPV during pregnancy ^c			Increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic		
	No. ^d	% ^e (95% CI)	P value ^f	% ^e (95% CI)	P value ^f	
Medicaid	6083	2.8 (2.3–3.6)		4.8 (4.0–5.7)		
Other	212	0.7 (0.1–3.6)		2.3 (0.6–8.2)		
None	474	2.0 (0.8–4.6)		4.5 (2.5–8.0)		
Prenatal care initiation			.08		.01	
First trimester	11 927	1.5 (1.2–1.8)		2.7 (2.3–3.2)		
Later or none	1834	2.4 (1.6–3.5)		4.8 (3.5–6.6)		
Parental pregnancy intention						
Pregnancy intention of the birthing parent			<.001		<.001	
Intended	8269	0.6 (0.4–0.9)		1.6 (1.3–2.0)		
Unintended	3328	3.2 (2.4–4.3)		5.1 (4.0–6.5)		
Unsure	2302	2.8 (2.0–3.9)		5.0 (3.6–6.9)		
Partner said they did not want the pregnancy in the 12 mo before birth ^g						
Yes	497	13.1 (9.3–18.0)		19.9 (15.1–25.8)		
No	8665	1.0 (0.7–1.3)		2.2 (1.8–2.8)		

Abbreviations: AOP, acknowledgment of paternity; IPV, intimate partner violence; PRAMS, Pregnancy Risk Assessment Monitoring System.

^aData source: PRAMS.¹⁴

^bReported by individuals with a recent live birth (June–December 2020) in 29 sites conducting PRAMS: Alaska, Arizona, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Jersey, New York City, North Dakota, Oregon, Pennsylvania, Puerto Rico, South Dakota, Tennessee, Utah, Vermont, Virginia, West Virginia, and Wyoming.

^cRespondent indicated *yes* to husband/partner or ex-husband/ex-partner doing any of the following during pregnancy: “hit, slap, kick, choke, or physically hurt you in any way.”

^dUnweighted sample size varies due to missing responses.

^eWeighted prevalence (expressed as a percentage).

^fWald χ^2 test with $P < .05$ considered significant.

^gIndicator used by 17 sites: Alaska, Connecticut, Delaware, Florida, Georgia, Illinois, Iowa, Louisiana, Massachusetts, Michigan, Missouri, Nebraska, New York City, Oregon, Pennsylvania, Utah, and Wyoming.

Table 3.

Prevalence of COVID-19–related stressors by experience of physical IPV during pregnancy and increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic: PRAMS,^a 2020^b

COVID-19–related stressors	Physical IPV during pregnancy ^c (n = 280)		Increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic (n = 426)	
	% ^d (95% CI)	APR (95% CI) ^e	% ^d (95% CI)	APR (95% CI) ^e
Economic				
Any economic stressor				
No	1.0 (0.7–1.4)	1 [Reference]	1.5 (1.1–2.0)	1 [Reference]
Yes	2.3 (1.8–2.9)	1.75 (1.10–2.80)	4.6 (3.9–5.5)	2.56 (1.80–3.66)
Respondent lost job or pay				
No	1.3 (0.9–1.7)	1 [Reference]	2.0 (1.6–2.5)	1 [Reference]
Yes	2.5 (1.9–3.3)	1.47 (0.94–2.30)	5.2 (4.2–6.4)	2.24 (1.62–3.09)
Household member lost job or pay				
No	1.5 (1.1–1.9)	1 [Reference]	2.4 (1.9–2.9)	1 [Reference]
Yes	2.0 (1.5–2.7)	1.17 (0.76–1.79)	4.6 (3.7–5.7)	1.67 (1.22–2.29)
Problems paying bills				
No	0.9 (0.7–1.2)	1 [Reference]	1.7 (1.3–2.1)	1 [Reference]
Yes	4.1 (3.1–5.4)	2.98 (1.90–4.67)	8.0 (6.6–9.7)	3.80 (2.72–5.29)
Housing				
Any housing stressor				
No	1.2 (1.0–1.6)	1 [Reference]	2.3 (1.9–2.8)	1 [Reference]
Yes	4.6 (3.3–6.4)	2.33 (1.41–3.84)	8.8 (6.9–11.2)	2.83 (2.03–3.94)
Had to move				
No	1.3 (1.0–1.7)	1 [Reference]	2.4 (2.0–2.9)	1 [Reference]
Yes	4.0 (2.8–5.8)	1.89 (1.12–3.20)	8.3 (6.5–10.6)	2.55 (1.82–3.58)
Became homeless				
No	1.4 (1.1–1.8)	1 [Reference]	2.7 (2.3–3.2)	1 [Reference]
Yes	13.0 (8.3–19.7)	4.76 (2.69–8.41)	20.3 (14.1–28.3)	5.24 (3.24–8.49)
Childcare^f				
Any childcare stressor				

COVID-19-related stressors	Physical IPV during pregnancy ^c (n = 280)		Increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic (n = 426)	
	% ^d (95% CI)	APR (95% CI) ^e	% ^d (95% CI)	APR (95% CI) ^e
No	1.2 (0.9–1.6)	1 [Reference]	2.0 (1.5–2.5)	1 [Reference]
Yes	2.3 (1.8–3.1)	1.98 (1.26–3.12)	4.6 (3.8–5.6)	2.43 (1.76–3.36)
Food insecurity				
No	1.1 (0.8–1.5)	1 [Reference]	1.9 (1.5–2.3)	1 [Reference]
Yes	4.2 (3.1–5.7)	2.51 (1.57–4.02)	8.7 (7.1–10.7)	3.72 (2.61–5.28)
Mental health				
Any mental health stressor				
No	0.9 (0.6–1.3)	1 [Reference]	1.1 (0.8–1.5)	1 [Reference]
Yes	2.3 (1.8 0 2.9)	2.88 (1.78–4.68)	4.8 (4.1–5.6)	4.54 (3.04–6.76)
Increased depression				
No	0.8 (0.6–1.1)	1 [Reference]	1.4 (1.1–1.9)	1 [Reference]
Yes	3.5 (2.7–4.6)	3.96 (2.56–6.11)	7.0 (5.9–8.4)	4.58 (3.23–6.49)
Increased anxiety				
No	1.0 (0.7–1.5)	1 [Reference]	1.3 (0.9–1.7)	1 [Reference]
Yes	2.2 (1.7–2.9)	1.12 (0.85–1.47)	4.8 (4.1–5.7)	4.12 (2.85–5.95)
Relationship				
More verbal arguments or conflicts				
No	0.8 (0.5–1.1)	1 [Reference]	0.5 (0.4–0.8)	1 [Reference]
Yes	5.7 (4.5–7.3)	6.63 (4.23–10.38)	14.8 (12.7–17.2)	25.37 (16.76–38.41)
COVID-19 illness ^g				
No	1.6 (1.3–2.0)	1 [Reference]	2.8 (2.3–3.2)	1 [Reference]
Yes	1.7 (1.0–2.6)	0.94 (0.55–1.61)	5.9 (4.1–8.4)	2.19 (1.46–3.28)

Abbreviations: APR, adjusted prevalence ratio; IPV, intimate partner violence; PRAMS, Pregnancy Risk Assessment Monitoring System.

^aData source: PRAMS. 14

^bReported by individuals with a recent live birth (June–December 2020) in 29 sites conducting PRAMS: Alaska, Arizona, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Jersey, New York City, North Dakota, Oregon, Pennsylvania, Puerto Rico, South Dakota, Tennessee, Utah, Vermont, Virginia, West Virginia, and Wyoming.

^cRespondent indicated yes to husband/partner or ex-husband/ex-partner doing any of the following during pregnancy: “hit, slap, kick, choke, or physically hurt you in any way.”

^dWeighted prevalence (expressed as a percentage).

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^e Adjusted for age, race and ethnicity, marital status, health insurance at delivery, and jurisdiction of residence.

^f Respondents reported that loss of childcare or school closures made it difficult to manage responsibilities and/or that they needed to spend more time than usual taking care of children or other family members.

^g Respondents reported that they or another member of their household was told that they had COVID-19 infection during the time when they were pregnant.

Table 4.

Associations of physical IPV during pregnancy and increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic with postpartum health conditions and behaviors and infant birth outcomes: PRAMS, ^a 2020^b

Characteristic	Physical IPV during pregnancy ^c (n = 280)		Increased physical, sexual, or emotional aggression from an intimate partner due to the COVID-19 pandemic (n = 2219)	
	% ^d (95% CI)	APR (95% CI) ^e	% ^d (95% CI)	APR (95% CI) ^e
Postpartum health conditions and behaviors				
Depressive symptoms				
No	1.4 (1.1–1.7)	1 [Reference]	16.1 (15.0–17.2)	1 [Reference]
Yes	3.1 (2.2–4.3)	1.73 (1.24–2.41)	29.6 (26.2–33.2)	2.28 (1.60–3.23)
Cigarette smoking				
No	1.4 (1.1–1.7)	1 [Reference]	16.9 (15.8–18.0)	1 [Reference]
Yes	3.7 (2.5–5.4)	1.74 (1.07–2.84)	27.9 (23.7–32.5)	2.19 (1.47–3.27)
Checkup				
No	3.9 (2.6–5.6)	1.84 (1.10–3.09)	21.6 (18.3–25.4)	1.15 (0.76–1.72)
Yes	1.3 (1.1–1.7)	1 [Reference]	17.4 (16.3–18.5)	1 [Reference]
Ever breastfed				
No	2.1 (1.3–3.4)	0.94 (0.55–1.62)	17.8 (14.8–21.2)	0.91 (0.59–1.42)
Yes	1.5 (1.2–1.8)	1 [Reference]	17.6 (16.5–18.7)	1 [Reference]
Infant birth outcomes^f				
Low birthweight infant				
No	1.5 (1.2–1.9)	1 [Reference]	2.9 (2.5–3.5)	1 [Reference]
Yes	2.8 (1.8–4.2)	1.50 (0.94–2.39)	5.3 (3.8–7.4)	1.15 (0.83–1.60)
Preterm birth				
No	1.5 (1.2–1.9)	1 [Reference]	3.0 (2.5–3.5)	1 [Reference]
Yes	2.5 (1.7–3.7)	1.26 (0.79–2.02)	4.4 (3.2–6.0)	1.19 (0.82–1.73)

Abbreviations: APR, adjusted prevalence ratio; IPV, intimate partner violence; PRAMS, Pregnancy Risk Assessment Monitoring System.

^aData source: PRAMS. ¹⁴

^bReported by individuals with a recent live birth (June–December 2020) in 29 sites conducting PRAMS: Alaska, Arizona, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Iowa, Louisiana, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Jersey, New York City, North Dakota, Oregon, Pennsylvania, Puerto Rico, South Dakota, Tennessee, Utah, Vermont, Virginia, West Virginia, and Wyoming.

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^c Respondent indicated yes to husband/partner or ex-husband/ex-partner doing any of the following during pregnancy: "hit, slap, kick, choke, or physically hurt you in any way."

^d Weighted prevalence (expressed as a percentage).

^e Adjusted for age, race, marital status, health insurance at delivery, and jurisdiction of residence.

^f Infant birth outcomes among singleton births.