



Published in final edited form as:

*Am J Prev Med.* 2024 March ; 66(3): 389–398. doi:10.1016/j.amepre.2023.11.001.

## Rape and Sexual Coercion Related Pregnancy in the United States

Denise V. D'Angelo, MPH<sup>1</sup>, Yang Liu, PhD<sup>2</sup>, Kathleen C. Basile, PhD<sup>1</sup>, Sharon G. Smith, PhD<sup>1</sup>, Jieru Chen, PhD<sup>2</sup>, Norah W. Friar, MPH<sup>1</sup>, Mark Stevens, MPH<sup>2</sup>

<sup>1</sup>Division of Violence Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, Georgia;

<sup>2</sup>Division of Injury Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, Georgia

### Abstract

**Introduction:** Sexual violence is a major public health problem in the U.S. that is associated with numerous health impacts, including pregnancy. U.S. population-based estimates (2010–2012) found that three million women experienced a rape-related pregnancy during their lifetimes. The current study presents more recent estimates of rape and sexual coercion-related pregnancy and examines prevalence by demographic characteristics.

**Methods:** Data years 2016/2017 were pooled from the National Intimate Partner and Sexual Violence Survey, a random-digit-dial telephone survey of U.S. non-institutionalized adults 18 years and older. The analysis, conducted in 2023, examined lifetime experience of rape-related pregnancy, sexual coercion-related pregnancy, or both among U.S. women. Authors calculated prevalence estimates with 95% CIs and conducted pairwise chi-square tests ( $p$ -value<0.05) to describe experiences by current age, race/ethnicity, and region of residence among U.S. women overall and among victims.

**Results:** One in 20 women in the U.S., or over 5.9 million women, experienced a pregnancy from either rape, sexual coercion, or both during their lifetimes. Non-Hispanic Multiracial women experienced a higher prevalence of all three outcomes compared with non-Hispanic White, non-Hispanic Black, and Hispanic women. Among victims who experienced pregnancy from rape, 28% experienced a sexually transmitted disease, 66% were injured, and over 80% were fearful or concerned for their safety.

**Conclusions:** Pregnancy as a consequence of rape or sexual coercion is experienced by an estimated six million U.S. women. Prevention efforts may include healthcare screenings to

---

Address correspondence to: Denise V. D'Angelo, MPH, 4770 Buford Highway NE, MS, S106-10, Atlanta, GA, 30341-3724. DDAngelo@cdc.gov.

#### CREDIT AUTHOR STATEMENT

Denise V. D'Angelo: Conceptualization, Writing – original draft, Writing – review & editing. Yang Liu: Formal analysis, Writing – review & editing. Kathleen C. Basile: Conceptualization, Methodology, Writing – original draft, Writing – review & editing. Sharon G. Smith: Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Project administration. Jieru Chen: Conceptualization, Methodology, Validation, Writing – original draft, Writing – review & editing. Norah W. Friar: Conceptualization, Methodology, Writing – original draft, Writing – review & editing. Mark Stevens: Supervision, Methodology, Validation.

identify violence exposure and use of evidence-based prevention approaches to reduce sexual violence.

---

## INTRODUCTION

Sexual violence victimization is an urgent public health problem in the U.S. that affects the mental and physical health of survivors.<sup>1-3</sup> Penetrative forms of sexual violence, such as rape (i.e., physically forced or alcohol/drug facilitated vaginal, oral, or anal penetration) and sexual coercion (i.e., non-physically pressured sex), can seriously impact the reproductive health of victims given the risk they pose for victims to acquire sexually transmitted infections and become pregnant.<sup>1</sup> In the U.S. during 2016/2017, one in four women (26.8%) reported completed or attempted rape, and similarly one in four women (23.4%) reported sexual coercion at some point in their life.<sup>1</sup>

There is little scholarship on the intersection of rape or sexual coercion and pregnancy using population-based samples. Holmes et al.,<sup>4</sup> in a study conducted nearly three decades ago, reported a weighted prevalence of rape-related pregnancy of 0.6% in the U.S., and estimated that 6.0% of reproductive age female rape victims experienced a rape-related pregnancy. Although this study was an important contribution to the field's understanding, it was limited by sample size and the operational definition of rape used in the estimates, which included not just vaginal but also anal and oral penetration that cannot result in pregnancy. Data from the 2010 National Intimate Partner and Sexual Violence Survey (NISVS) on rape-related pregnancy in the context of intimate partner violence (IPV) revealed that 1.7% or approximately two million women in the U.S. experienced pregnancy after rape by an intimate partner, and 2.4% of U.S. women experienced a rape-related pregnancy during their lifetimes from any perpetrator.<sup>3</sup>

More recent 2016/2017 NISVS data reported that one in seven female vaginal rape victims (14.9%) and 1 in 6 female sexual coercion victims (16.6%) became pregnant as a result of the rape or sexual coercion, respectively.<sup>1</sup> This is the only publication known to the authors that reported the prevalence of sexual coercion-related pregnancy, yet it is equally important to understand prevalence and characteristics of pregnancy from this type of violence.

Further, there is little information on racial/ethnic group differences regarding these experiences. Evidence suggests that some racial and ethnic minority women are heavily burdened by rape and sexual coercion; for example, more than two in five non-Hispanic American Indian/Alaska Native (43.7%) and non-Hispanic Multiracial (48.0%) women experienced rape in their lifetimes.<sup>1</sup> Similarly, one in three non-Hispanic American Indian/Alaska Native (32.0%) and two in five non-Hispanic Multiracial women (39.5%) had a lifetime experience of sexual coercion victimization.<sup>1</sup> Understanding the extent of the risk with nationally representative data is critically important to informing prevention activities.

The current study advances the knowledge about the prevalence of experiencing rape-related pregnancy and sexual coercion-related pregnancy, which has not been examined before, in important ways by building on the recent work of Basile et al.<sup>3</sup> This study contributes more recent national estimates among U.S. women overall, and among female rape victims;

provides estimates for sexual coercion-related pregnancy; and looks at findings by race/ethnicity, region of residence in the U.S., and age at the time of interview. Other impacts of these types of violence were also examined. Taken together, the more recent data, the addition of sexual coercion-related pregnancy, and additional contextual information can help inform violence prevention activities and efforts to ensure access to reproductive healthcare services for survivors of sexual violence.

## METHODS

This study used data from the 2016/2017 NISVS, an ongoing, nationally representative survey of non-institutionalized English- and Spanish-speaking adults (18 years and older) in the U.S. For the 2016/2017 data, sampling was conducted through a random-digit-dial methodology including a dual frame strategy of both landline and cell phones. The response rate was 7.6%; however, the cooperation rate was 58.6%, indicating that among adults who were contacted and determined to be eligible, most agreed to participate. Additional details about the NISVS 2016/2017 data collection methodology are described elsewhere.<sup>5</sup> Institutional Review Board approval was received for NISVS by the data collection contractor, RTI International.

### Study Sample

In 2016/2017 combined survey data, the overall unweighted sample included 15,152 females and 12,419 males. Gender (male, female, transgender) was self-reported on the survey. Given the focus of this study and the small number of transgender individuals, only data from respondents who indicated that their gender was female were examined, and these individuals are referred to as women or female victims to align with previous NISVS reports. In a previous NISVS publication on sexual violence, estimates of pregnancy for sexual coercion included all female victims of vaginal rape and sexual coercion regardless of the sex of the perpetrator.<sup>1</sup> To improve precision, in this analysis 28 female victims of sexual coercion only and 23 victims of either rape, sexual coercion, or both who reported having only female perpetrators were excluded from the denominator. For the analysis of female victims, the unweighted sample sizes were as follows: female victims of rape  $n=2,867$ , female victims of sexual coercion  $n=3,569$ , and female victims with any (either/both) experience  $n=4,627$ . For the analyses by subgroups (e.g., age, race/ethnicity, region), the denominators varied slightly due to missing values.

### Measures

Measures were based on the survey questions used in the 2016/2017 NISVS instrument and have been described in NISVS reports.<sup>1,5</sup> Rape was measured as completed, unwanted vaginal penetration of a female by a male with their penis by using physical force or alcohol/drug facilitation. Sexual coercion was measured as unwanted sexual penetration because of being pressured in a non-physical way by a male partner. Rape and sexual coercion had distinct follow-up questions.<sup>1,5</sup> More information on the impacts and other measures can be found on Table 1. Throughout this article, use of the word “reporting” refers to self-report of experiences on the NISVS survey, not reporting to law enforcement or other entities.<sup>5</sup>

Race/ethnicity was a 6-level variable that included Hispanic, non-Hispanic White, non-Hispanic Black, non-Hispanic Asian or Pacific Islander, non-Hispanic American Indian or Alaska Native, and non-Hispanic Multiracial persons. Due to small unweighted count (<21 respondents) and large relative standard error (>30%), results were suppressed for Asian or Pacific Islanders and American Indian or Alaska Native women. Of the total analysis sample, 0.20% of females did not provide sufficient race/ethnicity information for weighting, so their data values were imputed.<sup>5</sup>

Based on a survey participant's age at the time of interview, a 5-category age group variable was created and defined as follows: 18–24, 25–34, 35–44, 45–64, and 65 year or older. A 4-level U.S. region variable was created based on respondent residence at the time of the survey (Northeast, Midwest, South, and West).

### Statistical Analysis

Estimated (weighted) percent, number of victims, and 95% CIs for lifetime rape victimization (physically forced or alcohol/drug-induced), sexual coercion, and any experience are presented in this study. The combined “any” estimates include people who experienced pregnancy from either one, the other, or both types of sexual violence. Estimates were calculated among U.S. women overall including the full sample of women in the denominator (Table 2), and separately for female victims, excluding from the denominator people who reported only female perpetrators (Table 3).

Estimates presented were generated using complex sample statistical analysis software SUDAAN version 11.0 (RTI International, Research Triangle, NC). Estimates were weighted to the U.S. population (the most current U.S. census data at the end of the respective data collection year) by age, race/ethnicity, marital status, education, and state population.<sup>5</sup> Pairwise comparison tests were conducted to examine differences in experiences of rape- and/or sexual coercion-related pregnancy among demographic groups (by race/ethnicity, region, and age at time of survey) by evaluating the  $p$ -value<0.05 of the chi-square test to determine statistical significance.

## RESULTS

In their lifetimes, 4.8% or 5.9 million U.S. women have become pregnant as a result of either rape, sexual coercion, or both. Examined independently, 2.7% or 3.4 million women became pregnant as a result of rape during their lifetimes, and 3.9% or nearly 4.9 million U.S. women became pregnant as a result of sexual coercion in their lifetimes. There were no differences in prevalence by region for any of the estimates.

Among U.S. women overall, the analysis by race/ethnicity showed that some groups experienced pregnancy from rape more than other groups. For example, non-Hispanic Multiracial women had significantly higher prevalence (6.3%, 95% CI: 3.6–10.8) compared with Hispanic women (2.0%, 95% CI: 1.2–3.5) and non-Hispanic Black women (2.3%, 95% CI: 1.5–3.7) (Table 2).

For pregnancy from sexual coercion, non-Hispanic Multiracial women (10.2%, 95% CI: 6.5–15.7) had higher prevalence compared with non-Hispanic White women (3.9%, 95% CI: 3.3–4.6). Non-Hispanic Multiracial women and non-Hispanic White women, as well as non-Hispanic Black women (5.4%, 95% CI: 3.8–7.6), had higher prevalence compared with Hispanic women (2.2%, 95% CI: 1.3–3.6) (Table 2).

For pregnancy from any experience (either rape, sexual coercion, or both), non-Hispanic White (4.8%, 95% CI: 4.1–5.5), non-Hispanic Black (5.8%, 95% CI: 4.2–8.0), and non-Hispanic Multiracial women (12.2%, 95% CI: 8.0–18.0) all had higher prevalence compared with Hispanic women (3.1%, 95% CI 2.1–4.8). In addition, non-Hispanic Multiracial women had higher prevalence compared with non-Hispanic White and non-Hispanic Black women (Table 2).

Among all U.S. women, the prevalence of lifetime experiences of pregnancy from rape, sexual coercion, and any experience was significantly lower in the 65+ age group compared to all other age categories with stable estimates (i.e., the 18–24 age group prevalence estimates were unstable for pregnancy from rape) (Table 2).

Separate analyses specific to victims of rape or sexual coercion (instead of all U.S. women) were conducted, as well. Results indicated that 16.0% (5.9 million) of female victims became pregnant as a result of any of these experiences (either rape, sexual coercion, or both) during their lifetimes. In looking at the prevalence among victims by racial/ethnic group, no significant differences were found for pregnancy from rape. For pregnancy from sexual coercion, non-Hispanic Black (23.0%, 95% CI: 16.8–30.7) and non-Hispanic Multiracial (25.9%, 95% CI: 16.8–37.5) victims had significantly higher prevalence than Hispanic victims (13.1%, 95% CI: 8.1–20.4). For pregnancy from any of these experience, non-Hispanic Multiracial victims (25.5%, 95% CI: 17.2–35.9) had significantly higher prevalence than non-Hispanic White victims (14.9%, 95% CI: 12.9–17.2). Similar to the findings for all U.S. women, among female victims, a smaller proportion of the 65+ age group reported any of the experienced compared to all other age categories with stable estimates (Table 3).

Approximately a quarter of victims who experienced a pregnancy from rape (28.3%) and about one third of victims who experienced a pregnancy from sexual coercion or any experience (34.8% and 34.5%, respectively) also reported contracting an STD from the victimization. For victims who experienced a pregnancy from rape, 66.3% suffered an injury, 82.0% were concerned for their safety, and 85.7% felt fearful because of the violence against them (Table 4).

## DISCUSSION

Based on findings from this study, among U.S. women overall, one in twenty (approximately 5%) have experienced a pregnancy from either rape, sexual coercion, or both in their lifetimes. Among victims of any of these experiences, a subset of all U.S. women, 16% reported a pregnancy in their lifetime. Victims who experienced rape or sexual coercion that

resulted in a pregnancy often reported other negative health impacts such as concerns for safety, feeling fearful, being injured, and contracting an STD.

Estimates for pregnancy from rape in the current study are similar to 2010–2012 NISVS estimates (2.7% and 2.4%, respectively), and higher than what was reported by Holmes in the 1990s (0.6%).<sup>4</sup> Noting the range of estimates, it is important to consider that measuring experiences of rape on surveys can be difficult and the use of varying methodologies or question wording can lead to differing estimates. For example, rape estimates from other sources such as the National College Women Sexual Victimization study and the National Violence Against College Women study ranged from 4.4% to 10.4% (for rape in the last 6–9 months), however these estimates did not relate to pregnancies from rape.<sup>6</sup>

Recognizing and better understanding sexual coercion-related pregnancies is also important, and comparable information from prior studies is not available. In this analysis, a greater prevalence of this form of sexual violence was found compared with pregnancy from rape (3.9% vs. 2.7%, respectively). Sexual coercion may not involve physical force, but similar underlying drivers related to exerting power or control over another person are likely at play. Sexual coercion might be happening in the context of reproductive coercion in which female victims are manipulated into becoming pregnant by false promises or threats or tricked. Examples include when a male perpetrator uses birth control sabotage such as engaging in behaviors like stealthing, secretly taking off a condom during sex, or not telling their partner if a condom breaks.<sup>7–10</sup>

Rape-related pregnancy has been associated with reproductive coercion<sup>3</sup> and other types of intimate partner violence, such as physical violence.<sup>11</sup> A systematic review on reproductive coercion, found that women who experienced IPV disproportionately experienced concurrent reproductive coercion, and that 1%–19% of women across 3 studies reported a partner pressuring or threatening them to get them pregnant, or pregnancy coercion.<sup>12</sup> Intimate partner violence during pregnancy can put the victim and fetus at high risk for adverse pregnancy or birth outcomes.<sup>13</sup> Further, since the pregnancy may result in a live birth, the impact on the infant or child is also important to consider.<sup>14</sup> Studies have found relationships between maternal experience of coercive intimate partner violence and child neglect,<sup>15</sup> and physical intimate partner violence before or during pregnancy with child protective service reports of alleged child maltreatment.<sup>16</sup> Adverse childhood experiences (ACEs) such as experiencing or witnessing violence in the home have been linked to numerous negative health effects for children that can extend into adulthood.<sup>17</sup>

Regarding the findings by age, higher prevalence may have been expected among older women, who would have more years during which to experience violence, however these findings may rather be reflecting a concentration of experiences earlier in life. According to NISVS data, age at first experience of rape was less than 25 years old for over 80% of female victims, and age at first experience of sexual coercion was less than 25 years old for 74% of female victims.<sup>1</sup>

Differences in experiences of either rape, sexual coercion, or both by race and ethnicity were also found. The finding of higher levels of violence against non-Hispanic Black

and non-Hispanic Multiracial women is consistent with other studies documenting the disproportionate burden of violence experienced by women from marginalized racial and ethnic groups that has persisted unabated over time in multiple forms including pregnancy-associated homicides,<sup>18,19</sup> IPV and reproductive coercion,<sup>20–22</sup> and abductions and murders.<sup>23</sup> Underlying structural factors such as inequities in access to safe housing, quality education, livable wages, and other social determinants of health, often rooted in racism, have been associated with these differences in experiencing violence.<sup>24,25</sup> Significantly higher prevalence was found among non-Hispanic Multiracial women compared with non-Hispanic Black women and women of other race/ethnicities for several indicators. Multiracial women may experience unique stressors related to racial identity, as well as discrimination within each of the racial communities that they belong to leading to potential isolation and other factors that can increase risk for experiencing violence.<sup>22,26</sup> Of note, there were wide confidence intervals around the estimates for Multiracial women, indicating a need to interpret these findings with caution and explore these results through future research.

Reducing sexual violence overall may help reduce the prevalence of rape-related and sexual coercion-related pregnancies. Research has shown that sexual violence starts early in life, is associated with other forms of violence, and is related to numerous risk factors and consequences beyond pregnancy.<sup>27</sup> The results from this study showed that women who experienced rape, sexual coercion, or both that result in pregnancy experienced other impacts from this or other rape/sexual coercion victimization including STDs, fear, and injury. Other long-lasting effects of sexual violence in the literature include consequences such as chronic physical health conditions, depression, and post-traumatic stress disorder symptoms.<sup>28–30</sup>

A comprehensive public health approach for the prevention of sexual violence is critical. Primary prevention includes strategies and approaches such as promoting healthy norms, engaging men and boys as allies, helping to develop healthy dating and relationship skills, modeling positive masculinity, providing and strengthening economic opportunities for women and families, and creating protective environments.<sup>31</sup> In addition, screening for violence during healthcare encounters is important to identify, refer, and support sexual violence victims.<sup>32,33</sup>

## Limitations

This study has several limitations. First, while the cooperation rate was almost 60%, the response rate was low which may impact the representativeness of the findings. Second, the impacts of injury, fear and concern for safety were collected for pregnancies that resulted from rape but not sexual coercion, and none of the impacts can be conclusively linked to the incident that caused the pregnancy for victims who reported more than one rape or more than one instance of sexual coercion. Third, the subgroup sample sizes for Asian or Pacific Islanders and American Indian or Alaska Native women were insufficient for generating reliable estimates, and small sample size for other racial and ethnic groups such as Multiracial women resulted in wide 95% CIs for the estimates and a need to interpret these findings with caution.<sup>5</sup> Finally, information was not available about the outcome of

the pregnancies, the number of pregnancies per victim, or the perpetrator which limits understanding of this issue. Nevertheless, the study is one of very few to provide nationally representative estimates and characteristics of these experiences of sexual violence and pregnancy.

## CONCLUSIONS

There is broad recognition of the seriousness of rape as a form of violence. This study is one of the few to highlight the national prevalence of pregnancy as an outcome of rape and sexual coercion building on past work with recent estimates making an important contribution to understanding the overlap of sexual violence and reproductive health in the U.S. This information is critical to advancing efforts to ensure services and reproductive healthcare access to victims of violence. Sexual violence can be prevented, and prevention efforts may include screening to identify violence exposure during pregnancy and use of evidence-based primary prevention approaches that teach skills, promote social norms and environments that are protective against violence, and support and empower women and girls.

## ACKNOWLEDGMENTS

The authors acknowledge Srijana Khatiwada, M.S. for analytic consultation and results verification. The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention. Authors have no conflicts of interest.

No financial disclosures have been reported by the authors of this paper.

## REFERENCES

1. Basile KC, Smith SG, Kresnow M, Khatiwada S, Leemis RW. The National Intimate Partner and Sexual Violence Survey: 2016/2017 Report on Sexual Violence. Atlanta, GA: Centers for Disease Control and Prevention; Published June 2022. <https://www.cdc.gov/violence-prevention/pdf/nisvs/nisvsReportonSexualViolence.pdf>.
2. Black MC, Basile KC, Breiding MJ, et al. The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 summary report. Atlanta, GA: Centers for Disease Control and Prevention; Published November 2011. [https://www.cdc.gov/violenceprevention/pdf/NISVS\\_Report2010-a.pdf](https://www.cdc.gov/violenceprevention/pdf/NISVS_Report2010-a.pdf).
3. Basile KC, Smith SG, Liu Y, et al. Rape-related pregnancy and association with reproductive coercion in the U.S. *Am J Prev Med.* 2018;55(6):770–776. 10.1016/j.amepre.2018.07.028. [PubMed: 30361141]
4. Holmes MM, Resnick HS, Kilpatrick DG, Best CL. Rape-related pregnancy: estimates and descriptive characteristics from a national sample of women. *Am J Obstet Gynecol.* 1996;175(2):320–325. 10.1016/s0002-9378(96)70141-2. [PubMed: 8765248]
5. Kresnow M, Smith SG, Basile KC, Chen J. The National Intimate Partner and Sexual Violence Survey: 2016/2017 methodology report. Atlanta, GA: Centers for Disease Control and Prevention; Published January 2022. <https://www.cdc.gov/violenceprevention/pdf/nisvs/nisvsMethodologyReport.pdf>.
6. Fisher BS. The effects of survey question wording on rape estimates: evidence from a quasi-experimental design. *Violence Against Women.* 2009;15(2):133–147. 10.1177/1077801208329391. [PubMed: 19126832]
7. Brodsky A. Rape-adjacent: imagining legal responses to nonconsensual condom removal. *Columbia J Gend Law.* 2017;32:183–210. <https://heinonline.org/HOL/LandingPage?handle=hein.journals/coljgl32&div=11&id=&page=>.



8. Davis KC. "Stealthling": factors associated with young men's nonconsensual condom removal. *Health Psychol.* 2019;38(11):997–1000. 10.1037/hea0000779. [PubMed: 31259595]
9. Tarzia L, Srinivasan S, Marino J, Hegarty K. Exploring the gray areas between "stealthling" and reproductive coercion and abuse. *Women Health.* 2020;60(10):1174–1184. 10.1080/03630242.2020.1804517. [PubMed: 32835639]
10. Ebrahim S I'm not sure this is rape, but: an exposition of the stealthling trend. *Sage Open.* 2019;9(2). 10.1177/2158244019842201.
11. Blasdel R The co-occurrence of physical and sexual intimate partner violence among us college females. *Int J Criminal Justice Sci.* 2021;16(1):97–109. 10.5281/zenodo.4762461.
12. Grace KT, Anderson JC. Reproductive coercion: a systematic review. *Trauma Violence Abuse.* 2018;19(4):371–390. 10.1177/1524838016663935. [PubMed: 27535921]
13. Sarkar NN. The impact of intimate partner violence on women's reproductive health and pregnancy outcome. *J Obstet Gynaecol.* 2008;28(3):266–271. 10.1080/01443610802042415. [PubMed: 18569465]
14. Grady G, Hinshaw-Fuselier S, Friar N. Expanding perspectives: a social inequities lens on intimate partner violence, reproductive justice, and infant mental health. *Infant Ment Health J.* 2019;40(5):624–639. 10.1002/imhj.21809. [PubMed: 31314924]
15. Nicklas E, Mackenzie MJ. Intimate partner violence and risk for child neglect during early childhood in a community sample of fragile families. *J Fam Violence.* 2013;28:17–29. 10.1007/s10896-012-9491-8.
16. Parrish JW, Lanier P, Newby-Kew A, Arvidson J, Shanahan M. Maternal intimate partner violence victimization before and during pregnancy and postbirth child welfare contact: a population-based assessment. *Child Maltreat.* 2016;21(1):26–36. 10.1177/1077559515616704. [PubMed: 26627838]
17. Merrick MT, Ford DC, Ports KA, et al. Vital signs: estimated proportion of adult health problems attributable to adverse childhood experiences and implications for prevention: 25 states, 2015–2017. *MMWR Morb Mortal Wkly Rep.* 2019;68(44):999–1005. 10.15585/mmwr.mm6844e1. [PubMed: 31697656]
18. Kivisto AJ, Mills S, Elwood LS. Racial disparities in pregnancy-associated intimate partner homicide. *J Interpers Violence.* 2022;37(13–14):NP10938–NP10961. 10.1177/0886260521990831. [PubMed: 33527866]
19. 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. 10.1089/jwh.2020.8875. [PubMed: 33295844]
20. Basile KC, Smith SG, Liu Y, Miller E, Kresnow MJ. Prevalence of intimate partner reproductive coercion in the United States: racial and ethnic differences. *J Interpers Violence.* 2021;36(21–22):NP12324–NP12341. 10.1177/0886260519888205. [PubMed: 31808711]
21. Gillum TL. The intersection of intimate partner violence and poverty in Black communities. *Aggress Violent Behav.* 2019;46:37–44. 10.1016/j.avb.2019.01.008.
22. Holliday CN, McCauley HL, Silverman JG, et al. Racial/ethnic differences in women's experiences of reproductive coercion, intimate partner violence, and unintended pregnancy. *J Womens Health (Larchmt).* 2017;26(8):828–835. 10.1089/jwh.2016.5996. [PubMed: 28402692]
23. 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. 10.1016/j.jflm.2021.102136. [PubMed: 33631709]
24. Crear-Perry J, Correa-de-Araujo R, Lewis Johnson T, McLemore MR, Neilson E, Wallace M. Social and structural determinants of health inequities in maternal health. *J Womens Health (Larchmt).* 2021;30(2):230–235. 10.1089/jwh.2020.8882. [PubMed: 33181043]
25. Maldonado AI, Murphy CM, Davis M, Evans MK, Zonderman AB. Racial discrimination, mental health symptoms, and intimate partner violence perpetration in Black adults. *J Consult Clin Psychol.* 2022;90(3):209–220. 10.1037/ccp0000712. [PubMed: 35201781]
26. Williams D, Bartelt E, Thomas B, et al. Beyond the boundaries: exploring the identity-related experiences of biracial/multiracial and bisexual adults. *Arch Sex Behav.* 2022;51(4):2241–2259. 10.1007/s10508-021-02236-w. [PubMed: 35622076]

27. Wilkins N, Tsao B, Hertz M, Davis R, Klevens J. Connecting the Dots: An Overview of the Links Among Multiple Forms of Violence. Atlanta, GA: Centers for Disease Control and Prevention; Published July 2014. [https://www.cdc.gov/violenceprevention/pdf/connecting\\_the\\_dots-a.pdf](https://www.cdc.gov/violenceprevention/pdf/connecting_the_dots-a.pdf).
28. Barker LC, Stewart DE, Vigod SN. Intimate partner sexual violence: an often overlooked problem. *J Womens Health (Larchmt)*. 2019;28(3):363–374. 10.1089/jwh.2017.6811. [PubMed: 30335574]
29. Gilliam HC, Howell KH, Paulson JL, Napier TR, Miller-Graff LE. Pregnancy complications and intimate partner violence: the moderating role of prenatal posttraumatic stress symptoms. *J Trauma Stress*. 2022;35(5):1484–1496. 10.1002/jts.22855. [PubMed: 35765157]
30. Basile KC, Smith SG, Chen J, Zwald M. Chronic diseases, health conditions, and other impacts associated with rape victimization of U.S. Women. *J Interpers Violence*. 2021;36(23–24):NP12504–NP12520. 10.1177/0886260519900335. [PubMed: 31971055]
31. ACOG Committee Opinion No. 518: intimate partner violence. *Obstet Gynecol*. 2012;119(2 Pt 1):412–417. 10.1097/AOG.0-b013e318249ff74. [PubMed: 22270317]
32. US Preventive Services Task Force, Curry SJ, Krist AH, 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. 10.1001/jama.2018.14741. [PubMed: 30357305]
33. Basile KC, DeGue S, Jones K, et al. STOP SV: A Technical Package to Prevent Sexual Violence. Atlanta, GA: Centers for Disease Control and Prevention; Published 2016. <https://www.cdc.gov/violenceprevention/pdf/sv-prevention-technical-package.pdf>.

**Table 1.**

Description of Indicator Measures and Definitions

Type of sexual violence and indicator measure	NISVS question	Analysis definition
Rape		
Alcohol/drug facilitated rape	When you were unable to consent to sex or stop it from happening because you were too drunk, high, drugged, or passed out from alcohol or drugs, how many MALES ever did the following when you did not want them to ... Put their penis in your vagina?	Response of 1 or more
Physically forced rape	How many MALES have ever used physical force or threats of physical harm to ... put their penis in your vagina?	Response of 1 or more
Pregnancy	Did you ever get pregnant when {FILL: "this" / "any of these things"} happened?	Response of Yes to vaginal rape question (alcohol/drug-facilitated or physically forced) AND response of yes to pregnancy impact
Sexually transmitted disease	Did you ever get an STD or other infection when {FILL: "this"/"any of these things"} happened? For example, did you get Chlamydia, Gonorrhea, HIV, or some other STD?	Response of Yes to vaginal rape question (alcohol/drug-facilitated or physically forced) AND response of yes to STD impact
Concern for safety	Were you ever concerned for your safety?	Response of Yes to vaginal rape question (alcohol/drug-facilitated or physically forced) AND response of yes to concern for safety impact
Fear	Were you ever fearful for yourself or someone close to you?	Response of Yes to vaginal rape question (alcohol/drug-facilitated or physically forced) AND response of yes to fear impact
Sexual coercion	How many people have you had vaginal, oral, or anal sex with after they pressured you by doing any of the following? <ul style="list-style-type: none"> <li>• Telling you lies, making promises about the future they knew were untrue, threatening to end your relationship, or threatening to spread rumors about you?</li> <li>• Wearing you down by repeatedly asking for sex, or showing they were unhappy?</li> </ul> Using their influence or authority over you, for example, your boss or your teacher?	Response of 1 or more to any sexual coercion question
Pregnancy	Did you ever get pregnant when FILL: "this"/"any of these things"} happened?	Response of Yes to any sexual coercion question AND response of yes to pregnancy impact
STD	Did you ever get a sexually transmitted disease or other infection when {FILL: "this" / "any of these things"} happened? For example, did you get Chlamydia, Gonorrhea, HIV, or some other STD?	Response of Yes to any sexual coercion question AND response of yes to STD impact

**Table 2.** Lifetime Prevalence of Pregnancy From Rape, Sexual Coercion, or Any Experience Among U.S. Women

Characteristics	Pregnancy from rape		Pregnancy from sexual coercion		Pregnancy from any experience (rape, sexual coercion or both)	
	Weighted % (95% CI)	Estimated number of women <sup>d</sup>	Weighted % (95% CI)	Estimated number of women <sup>d</sup>	Weighted % (95% CI)	Estimated number of women <sup>d</sup>
Overall (U.S. women) <sup>b</sup>	2.7 (2.3, 3.3)	3,422,000	3.9 (3.4, 4.5)	4,877,000	4.8 (4.2, 5.4)	5,935,000
Race/ethnicity <sup>c</sup>						
Hispanic	2.0 (1.2, 3.5)	366,000	<b>2.2<sup>e</sup>(1.3, 3.6)</b>	<b>393,000</b>	<b>3.1<sup>e</sup>(2.1, 4.8)</b>	<b>569,000</b>
Non-Hispanic White	2.8 (2.3, 3.4)	2,292,000	3.9 (3.3, 4.6)	3,148,000	4.8 (4.1, 5.5)	3,875,000
Non-Hispanic Black	2.3 (1.5, 3.7)	355,000	5.4 (3.8, 7.6)	829,000	5.8 (4.2, 8.0)	896,000
Non-Hispanic Multiracial	<b>6.3<sup>d</sup>(3.6, 10.8)</b>	<b>135,000</b>	<b>10.2<sup>d</sup>(6.5, 15.7)</b>	<b>219,000</b>	<b>12.2<sup>d</sup>(8.0, 18.0)</b>	<b>262,000</b>
U.S. region of residence at time of survey <sup>b</sup>						
Northeast	2.7 (1.9, 3.9)	624,000	3.3 (2.4, 4.5)	747,000	4.0 (3.0, 5.3)	915,000
Midwest	2.4 (1.7, 3.3)	633,000	3.7 (2.7, 5.2)	993,000	4.9 (3.7, 6.4)	1,294,000
South	2.4 (1.8, 3.1)	1,116,000	4.0 (3.2, 4.9)	1,850,000	4.7 (3.8, 5.6)	2,176,000
West	3.7 (2.5, 5.3)	1,049,000	4.5 (3.3, 6.1)	1,286,000	5.4 (4.1, 7.1)	1,549,000
Age (years) at time of survey						
18–24	<i>f</i>	<i>f</i>	3.9 (2.6, 5.8)	594,000	4.1 (2.7, 6.0)	622,000
25–34	3.2 (2.0, 5.0)	673,000	4.7 (3.3, 6.6)	1,001,000	5.9 (4.3, 8.0)	1,259,000
35–44	3.1 (2.1, 4.3)	626,000	4.1 (3.0, 5.5)	834,000	5.1 (3.9, 6.6)	1,035,000
45–64	3.3 (2.6, 4.4)	1,430,000	4.5 (3.6, 5.7)	1,936,000	5.4 (4.4, 6.6)	2,310,000
65+	<b>1.6<sup>d</sup>(1.1, 2.3)</b>	<b>390,000</b>	<b>2.0<sup>d</sup>(1.5, 2.9)</b>	<b>512,000</b>	<b>2.8<sup>d</sup>(2.1, 3.8)</b>	<b>708,000</b>

Note: Boldface indicates statistical significance for pairwise chi-square tests (*p*-value<0.05).

<sup>a</sup>Rounded to the nearest thousand.

<sup>b</sup>Analyses of lifetime pregnancy among U.S. women includes all women in the denominator (n=15,152). Pregnancy from rape (n=385), pregnancy from sexual coercion (n=532), pregnancy from rape, sexual coercion, or both (n=666).

<sup>c</sup>Hispanic ethnicity includes persons of any race or a combination of races. The American Indian or Alaska Native designation does not indicate being enrolled or being affiliated with a tribe. Of the total analysis sample (n = 27,571), 0.20% are females who did not provide sufficient race/ethnicity information for weighting, so their data values were imputed.

<sup>d</sup>Significantly higher among non-Hispanic Multiracial women compared with Hispanic and non-Hispanic Black women.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

<sup>e</sup>Significantly lower than all other racial/ethnic groups.

<sup>f</sup>Significantly higher among non-Hispanic Multiracial women compared with non-Hispanic White women.

<sup>g</sup>Significantly higher than all other racial/ethnic groups.

<sup>h</sup>Regions in the U.S.: Northeast includes CT, ME, MA, NH, RI, VT, NJ, NY, PA; Midwest includes IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD; South includes DE, FL, GA, MD, NC, SC, VA, DC, WV, AL, KY, MS, TN, AR, LA, OK, TX; West includes: AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA.

<sup>i</sup> – Estimate is not reported; relative standard error > 30% or cell size < 20.

<sup>j</sup>Significantly lower than all other age groups with estimates available.

**Table 3.** Proportion of Female Victims of Rape, Sexual Coercion, or Any Experience Who Became Pregnant

Characteristics	Pregnancy from rape		Pregnancy from sexual coercion		Pregnancy from any experience (rape, sexual coercion or both)	
	Weighted % (95% CI)	Estimated number of women <sup>d</sup>	Weighted % (95% CI)	Estimated number of women <sup>d</sup>	Weighted % (95% CI)	Estimated number of women <sup>d</sup>
Overall (U.S. female victims) <sup>b</sup>	14.9 (12.7, 17.5)	3,422,000	16.7 (14.7, 19.0)	4,877,000	16.0 (14.2, 17.9)	5,935,000
Race/ethnicity <sup>c</sup>						
Hispanic	16.7 (10.0, 26.7)	366,000	<b>13.1<sup>d</sup>(8.1, 20.4)</b>	<b>393,000</b>	14.7 (9.8, 21.3)	569,000
Non-Hispanic White	14.3 (11.8, 17.3)	2,292,000	15.6 (13.3, 18.2)	3,148,000	14.9 (12.9, 17.2)	3,875,000
Non-Hispanic Black	11.8 (7.5, 18.1)	355,000	23.0 (16.8, 30.7)	829,000	20.1 (14.9, 26.6)	896,000
Non-Hispanic Multiracial	19.7 (11.5, 31.6)	135,000	25.9 (16.8, 37.5)	219,000	<b>25.5<sup>e</sup>(17.2, 35.9)</b>	<b>262,000</b>
US region of residence at time of survey <sup>f</sup>						
Northeast	16.7 (11.7, 23.3)	624,000	15.3 (11.2, 20.6)	747,000	14.7 (11.1, 19.3)	915,000
Midwest	13.6 (9.8, 18.7)	633,000	16.0 (11.7, 21.4)	993,000	16.6 (12.8, 21.3)	1,294,000
South	12.8 (9.9, 16.3)	1,116,000	17.2 (14.2, 20.7)	1,850,000	15.5 (13.0, 18.5)	2,176,000
West	18.2 (12.9, 25.1)	1,049,000	17.6 (13.1, 23.3)	1,286,000	17.0 (13.1, 21.8)	1,549,000
Age (years) at time of survey						
18–24	– <sup>g</sup>	– <sup>g</sup>	15.0 (10.1, 21.6)	594,000	12.9 (8.8, 18.5)	622,000
25–34	15.3 (10.0, 22.8)	673,000	16.7 (12.1, 22.7)	1,001,000	17.2 (12.8, 22.6)	1,259,000
35–44	16.1 (11.4, 22.1)	626,000	15.9 (11.8, 21.0)	834,000	15.9 (12.2, 20.3)	1,035,000
45–64	15.5 (12.0, 19.8)	1,430,000	18.3 (14.8, 22.4)	1,936,000	16.8 (13.9, 20.2)	2,310,000
65+	<b>14.3<sup>h</sup>(9.9, 20.2)</b>	<b>390,000</b>	<b>15.3<sup>h</sup>(10.9, 21.0)</b>	<b>512,000</b>	<b>15.1<sup>h</sup>(11.4, 19.8)</b>	<b>708,000</b>

Note: Boldface indicates statistical significance for pairwise chi-square tests ( $p < 0.05$ ).

<sup>a</sup> Rounded to the nearest thousand.

<sup>b</sup> Analyses of lifetime pregnancy among female victims excludes from the denominator victims who had only female perpetrators; Rape denominator (n=2,867); Sexual Coercion denominator (n=3,569); Either/both denominator (n=4,627). Pregnancy from rape (n=385), pregnancy from sexual coercion (n=532), pregnancy from rape, sexual coercion, or both (n=666).

<sup>c</sup> Hispanic ethnicity includes persons of any race or a combination of races. The American Indian or Alaska Native designation does not indicate being enrolled or being affiliated with a tribe. Of the total analysis sample (n=27,571), 0.20% are females who did not provide sufficient race/ethnicity information for weighting, so their data values were imputed.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

<sup>d</sup>Significantly lower than non-Hispanic Black and non-Hispanic Multiracial groups.

<sup>e</sup>Significantly higher than non-Hispanic White group.

<sup>f</sup>Regions in the U.S.: Northeast includes CT, ME, MA, NH, RI, VT, NJ, NY, PA; Midwest includes IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD; South includes DE, FL, GA, MD, NC, SC, VA, DC, WV, AL, KY, MS, TN, AR, LA, OK, TX; West includes: AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA.

<sup>g</sup>– Estimate is not reported; relative standard error > 30% or cell size < 20.

<sup>h</sup>Significantly lower than all other age groups with estimates available.

**Table 4.** Impacts<sup>a</sup> From Rape, Sexual Coercion, or Any Experience Among Female Victims Who Became Pregnant

Impacts experienced	Pregnancy from rape		Pregnancy from sexual coercion		Pregnancy from any experience (rape, sexual coercion or both)	
	Weighted % (95% CI)	Estimated number of victims <sup>b</sup>	Weighted % (95% CI)	Estimated number of victims <sup>b</sup>	Weighted % (95% CI)	Estimated number of victims <sup>b</sup>
Sexually transmitted disease	28.3 (21.2, 36.7)	968,000	34.8 (28.4, 41.9)	1,699,000	34.5 (28.7, 40.8)	2,047,000
Injury <sup>c</sup>	66.3 (58.0, 73.7)	2,269,000				
Felt concern for safety <sup>c</sup>	82.0 (75.1, 87.2)	2,805,000				
Felt fearful <sup>c</sup>	85.7 (79.6, 90.2)	2,933,000				

<sup>a</sup>Impacts cannot be conclusively linked to the incident that resulted in the pregnancy for victims who experienced multiple incidents, n=4,650.

<sup>b</sup>Rounded to the nearest thousand.

<sup>c</sup>This impact was asked only among victims of rape and is restricted in this analysis to victims of vaginal rapes by a male that resulted in pregnancy