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## Rape-Related Pregnancy and Association With Reproductive Coercion in the U.S.

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### Abstract

**Introduction:** Rape-related pregnancy is a public health problem where sexual violence and reproductive health intersect; yet, there is a dearth of research to inform public health practice. The authors examined the prevalence and characteristics of rape-related pregnancy in U.S. women and its association with intimate partner reproductive coercion.

**Methods:** Data years 2010–2012 are pooled from the National Intimate Partner and Sexual Violence Survey, a telephone survey of U.S. adults. Accounting for complex survey design, in 2017, authors estimated the prevalence of vaginal rape-related pregnancy for U.S. women overall and by race/ethnicity. The authors also examined the proportion of rape-related pregnancy among victims of vaginal rape overall, by perpetrator type and by presence of reproductive coercion in the context of intimate partner rape.

**Results:** Almost 2.9 million U.S. women (2.4%) experienced rape-related pregnancy during their lifetime. Among rape victims, 77.3% reported a current/former intimate partner perpetrator, and 26.2% of intimate partner rape victims reported rape-related pregnancy compared with those raped by an acquaintance (5.2%) or stranger (6.9%). Women raped by an intimate partner and reporting rape-related pregnancy were significantly more likely to have experienced reproductive coercion compared with women who were raped by an intimate partner but did not become pregnant.

**Conclusions:** This paper reports the first national prevalence of rape-related pregnancy by any perpetrator in two decades. The high proportion of rape-related pregnancy committed by intimate partner perpetrators and its association with reproductive coercion suggest the need for primary

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prevention of intimate partner violence and access to trauma-informed reproductive health services for rape/intimate partner violence victims.

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## INTRODUCTION

Rape, defined as forced or alcohol/drug-facilitated anal, oral, or vaginal penetration,<sup>1</sup> is a significant public health problem. Women in particular are vulnerable to rape; data collected between 2010 and 2012 indicate that approximately one in five women (19.1%), or an estimated 22.9 million U.S. women aged 18 years or older, are victims of completed or attempted rape at some point in life, and annually, 1.2% of women (almost 1.5 million) are raped.<sup>2</sup> Racial and ethnic disparities exist for women experiencing rape, with non-Hispanic multiracial, non-Hispanic American Indian/Alaska Native, and non-Hispanic black women disproportionately burdened.<sup>2</sup>

There are a number of health consequences of rape in the short-term, including injury, sexually transmitted infection, and pregnancy. In the long-term, health-care utilization for gastrointestinal, cardiopulmonary, neurologic, genitourinary, and chronic pain symptoms are increased for victims of rape and other sexual violence (SV).<sup>3</sup> SV victims are also at risk for mental health issues and increased cigarette, alcohol, and illicit drug use.<sup>3</sup> The health impact of rape expands for women who experience rape-related pregnancy (RRP). In addition, approximately one third of women who experience RRP do not discover they are pregnant until the second trimester,<sup>4</sup> missing important opportunities for early reproductive health care.<sup>5,6</sup>

There is a dearth of research, however, on the magnitude and characteristics of RRP in the U.S. One longitudinal study of women by Holmes and colleagues<sup>4</sup> reported a weighted U.S. prevalence of 0.6% for RRP at any age among adult women. This study also estimated that 6.0% of female rape victims of reproductive age experienced RRP. However, this study was based on a small number of pregnancies (20 of 315 victims aged 12–45 years) and rape was defined as nonconsensual vaginal, anal, or oral penetration by force or threat of force so it is possible that some victims experienced types of rape other than vaginal rape. More recent findings from the 2010 National Intimate Partner and Sexual Violence Survey (NISVS) reported that 1.7% or approximately 2 million women in the U.S. have experienced pregnancy related to rape by an intimate partner (IP).<sup>7</sup> This study, however, did not include RRP perpetrated by non-IPs.

Although not the complete picture, the role of IPs and experiencing multiple forms of intimate partner violence (IPV) is an important factor in understanding RRP. Among the RRP victims in the study by Holmes and colleagues,<sup>4</sup> the majority of rapes were committed by known perpetrators, most commonly boyfriends (29%), husbands (17.6%), and friends (14.7%). McFarlane et al.<sup>8</sup> found that of 148 physically abused women, 68% experienced some form of sexual assault by their IP and 20% reported RRP.

The intersections between IPV, rape, and reproductive health are complex and often mutually reinforcing. For instance, restrictive gender norms (i.e., rigid ideas about appropriate roles and behavior of men and women) have been associated with rape and other

forms of violence and control in intimate relationships.<sup>9,10</sup> These rigid norms, as well as gender-based power and IPV, are also associated with unintended and teen pregnancy.<sup>11–13</sup> Coercive control by IPs and gender-based power may be key underlying factors that knit together these intersecting public health issues.

Reproductive coercion may be particularly salient for understanding RRP and the intersections of IPV and reproductive health. An increasing literature has connected reproductive coercion to rape and other IPV.<sup>14,15</sup> Reproductive coercion is a specific type of IP coercive control that involves exerting power and control over reproduction through interference with contraception, pregnancy pressure, and pregnancy coercion. This can include threatening to leave if a partner does not become pregnant, and the use of threats or violence if a partner does not comply with a perpetrator's wishes regarding terminating or continuing a pregnancy.<sup>14,15</sup>

The 2010 NISVS found that the lifetime prevalence of reproductive coercion of women ranged from about 5% to 7%.<sup>16</sup> Studies using nonprobability clinical samples have found the prevalence of reproductive coercion against women ranges from 15% to 25%,<sup>15</sup> with non-Hispanic black and multiracial women most likely to report reproductive coercion.<sup>14,17,18</sup> Qualitative studies<sup>17,19</sup> have explored how the larger social context of race may play a role in reproductive coercion and its intersection with IPV and unintended pregnancy (UIP) for black women. For instance, disproportionate mass incarceration, violent death, and poverty may increase a black man's desire for pregnancy as a way to create a legacy and establish a connection with the child's mother. At the same time, these social factors reduce the pool of eligible black male partners, setting the stage for power imbalances in black intimate relationships and control over reproductive decision making.<sup>17,19</sup> Although these studies did not specifically focus on RRP, this scholarship offers insight into UIP in the context of IPV and reproductive coercion and identifies the importance of examining racial/ethnic differences in RRP.

Other than the studies described here,<sup>4,7,8</sup> there has been no scholarly work on the prevalence and characteristics of RRP. To the authors' knowledge, the current study is the first in more than 20 years<sup>4</sup> to provide nationally representative information on RRP by any perpetrator. Using a large sample, the current study reports national prevalence, proportion among rape victims, and prevalence by race/ethnicity. This study also reports the type of perpetrator and prevalence and association with reproductive coercion for IPV victims, which extends research on reproductive coercion.

## METHODS

### Study Sample

Data are from the 2010–2012 administration of NISVS. NISVS is an ongoing, national random-digit-dial telephone survey of the non-institutionalized English- or Spanish-speaking U.S. adult population (aged ≥ 18 years), using a dual-frame sampling strategy including both landline and cell phones. RTI International's IRB approved the survey protocol. NISVS assesses the lifetime and past 12-month prevalence and characteristics of SV, stalking, and IPV. In years 2010–2012, a total of 41,174 respondents (22,590 women) completed the

survey. Approximately 43.3% of interviews were conducted by landline and 56.7% by cell phone. The overall weighted response rate across 2010–2012 ranged from 27.5% to 33.6%. The weighted cooperation rate (the proportion of respondents who participated in the survey among those contacted and determined to be eligible) ranged from 80.3% to 83.5%. Only respondents who identified as female were included in this study, given the focus on pregnancy. Data were appropriately weighted and allow for estimates of the prevalence among U. S. adult women. Additional details on NISVS methods and weighting procedures can be found elsewhere.<sup>2</sup>

## Measures

Race/ethnicity was measured using the following questions: (1) *Are you of Hispanic or [if female: Latina; if male: Latino] origin?* (2) *What is your race? You may identify more than one category. Would you say you are white, black or African American, Asian, Native Hawaiian or Pacific Islander, or American Indian or Alaskan Native?* For the purposes of this analysis, responses were recoded into Hispanic, non-Hispanic white, non-Hispanic black, and other non-Hispanic race.

After asking about violence victimization, respondents were asked how they knew or what their relationship was to the person who committed the measured form of violence they reported. Responses were coded into the following categories: IP (current or former), family member (immediate and extended family), person of authority (e.g., supervisor, superior in command, teacher, coach), acquaintance (e.g., friends, neighbors, first date, someone briefly known), and stranger. Initials of each reported perpetrator were collected in order to link the violent acts to specific perpetrators and to determine the extent of violence by the same perpetrator.

Rape was measured with 13 items assessing completed or attempted forced, and completed alcohol-/drug-facilitated penetration of the victim, including oral, anal, and vaginal penetration.<sup>2</sup> Given the focus on pregnancy, the current analyses included rape victimization pertaining to completed vaginal penetration only. Women who reported experiencing completed alcohol-/drug-facilitated or completed forced vaginal penetration were coded as rape victims. The current analysis examined lifetime experiences.

Consistent with previous research,<sup>4</sup> RRP includes pregnancy that a rape victim attributed to rape by a specific perpetrator. Although it is possible, particularly regarding IP perpetrators, that the rape victim could have had consensual sex before or after the rape, which resulted in pregnancy, in this study rape victims were asked whether they became pregnant when that specific perpetrator raped them, so the victim attributed the pregnancy to the rape temporally.

All respondents who reported rape victimization were asked a series of follow-up questions about their experience of the rape in relation to the perpetrator (e.g., victim's age at first occurrence, physical injury, contraction of sexually transmitted disease). This section began with: *Let's talk some more about your experiences with [fill: perpetrator initials]. You said that [fill: perpetrator initials] [fill: rape experience(s) endorsed].* As part of this section, female respondents were asked, *Did you ever get pregnant when [fill: perpetrator initials]*

*did [fill: this/any of these things]?* Victims who reported completed vaginal rape and reported pregnancy when the perpetrator raped them were coded as having an RRP. Victims who experienced RRP more than once were only counted once in analyses.

Reproductive coercion was measured among women using two items: *How many of your romantic or sexual partners have ever: (1) tried to get you pregnant when you did not want to become pregnant or tried to stop you from using birth control? (2) refused to use a condom when you wanted them to use one?*<sup>a</sup> Responses were dichotomized for analyses. Victims who responded affirmatively to either of these two items were coded as having experienced any reproductive coercion. Using perpetrator initials, the authors linked perpetrators of reproductive coercion and rape with or without RRP.

### Statistical Analysis

Statistical inference for prevalence and population estimates was based on weighted analyses, taking into account complex sample design features, such as dual-sampling frames, stratified sampling, and unequal sample selection probabilities. Weighted analyses were conducted in 2017 using SAS-callable SUDAAN, version 11.0.1. Differences in estimates by race, victim–perpetrator relationship, and experiencing reproductive coercion by whether the victim experienced RRP were assessed using the Wald chi-square test with  $p$ -values  $< 0.05$  considered statistically significant. Eleven victims who reported pregnancy but did not report that they were vaginally raped were excluded from analyses. In addition, 57 victims of multiple rapes who reported both pregnancy and no pregnancy and 16 victims for whom pregnancy status was not known were excluded from analyses examining the association of RRP and reproductive coercion. Estimates based on  $< 20$  victims or when relative SEs  $> 30\%$  were considered statistically unreliable and were not reported.

## RESULTS

From the 2010–2012 pooled data, 2.4% or almost 2.9 million U.S. women experienced vaginal RRP during their lifetime. There were no significant differences in prevalence by race/ethnicity ( $p = 0.37$ ; Table 1).

Perpetrators were usually known to the victims. Among rape victims who reported RRP, more than three quarters (77.3%) reported that the perpetrator was a current or former IP. An estimated 13.9% reported that their perpetrator was an acquaintance; 5.3% reported a stranger; and too few women reported a family member or person of authority to produce reliable estimates (Table 2).

Approximately 18 million women (14.9%,  $n = 17,958,000$ ) experienced vaginal rape in their lifetime. Among these vaginal rape victims, 16.0% ( $n = 2,872,000$ ) reported RRP, with a significantly higher percentage of IP rape victims experiencing pregnancy (26.2%,  $n = 2,219,000/8,479,000$ ) compared with those raped by an acquaintance (5.2%,  $n = 399,000/7,605,000$ ) or stranger (6.9%,  $n = 151,000/2,186,000$ ,  $p < 0.001$ ; data not shown).

<sup>a</sup>This item does not specify that the condom refusal was in order to get the partner pregnant; thus, this item may be capturing other coercion beyond reproductive coercion, such as that related to sexual health (e.g., avoiding sexually transmitted infections).

Of women who were raped by an IP, 30.0% experienced either form of reproductive coercion by the same partner. Specifically, 19.6% reported that their partner tried to get them pregnant when they did not want to or tried to stop them from using birth control; 23.3% reported their partner refused to use a condom (Table 3).

Women who reported IP RRP were significantly more likely to have experienced reproductive coercion compared with victims of IP rape who did not report RRP by their partner (51.8% vs 22.1%,  $p < 0.001$ ). Compared with victims of IP rape who did not become pregnant, women who reported IP RRP were more likely to report that their partner tried to get them pregnant when they did not want to/tryed to stop them from using birth control (38.9% vs 12.4%,  $p < 0.001$ ) and that their partner refused to use a condom (44.0% vs 16.1%,  $p < 0.001$ ; Table 4).

## DISCUSSION

This paper is the first in over 20 years to offer a nationally representative prevalence estimate of RRP of U.S. women by any perpetrator and the first ever to provide these estimates by race/ethnicity. Estimates suggest that 2.4% or almost 2.9 million U.S. women overall reported RRP during their lifetime. In contrast to other studies that have found racial/ethnic disparities in rape victimization<sup>20,21</sup> and reproductive coercion and UIP,<sup>18,19</sup> in this national sample the authors found similar RRP prevalence across racial/ethnic groups. Findings reveal that IPs are common perpetrators of RRP. Also, among women who were raped by an IP, experiencing reproductive coercion was more likely for those who reported RRP from the same perpetrator compared with those who did not report pregnancy. These findings add to the understanding of the relationship between SV/IPV and reproductive health among U.S. women.

The lack of statistically significant differences in prevalence of RRP by race/ethnicity might potentially be explained by the difference in race/ethnicity of the two study populations. Although this is a nationally representative sample with respect to age and race/ethnicity, previous studies used clinical samples focusing on a cohort of women having a racial/ethnic distribution dissimilar to that of the U.S. adult population.<sup>18,19</sup> In addition, qualitative studies suggest that there are nuanced racial/ethnic differences in the experiences of reproductive coercion and IPV and the mediators with UIP,<sup>17,19</sup> which may not be captured in the measures used in this study. It could also be that SES is playing a role, given some previous work has found racial/ethnic differences associated with IPV are reduced when social class is controlled.<sup>22</sup> Qualitative and quantitative research that teases out the complex interplay between larger social factors and individual experiences of rape, IPV, and pregnancy may help to more fully examine the influence of race/ethnicity on RRP.

In this study, 77.3% of rape victims who reported RRP reported an IP perpetrator. These findings highlight how RRP intersects two important and related public health issues—IPV and reproductive health. UIPs are two to three times more likely to be associated with IPV than planned pregnancies.<sup>14</sup> Women who are raped by an IP also commonly experience other forms of violence from their partner.<sup>23,24</sup> Abuse, both in general and during pregnancy, is associated with poor maternal and child outcomes, including preterm labor; low birth

weight; and fetal, infant, and maternal death.<sup>13,25</sup> Women may not receive the support and services needed when pregnancy occurs related to rape, particularly in the context of an intimate relationship. Furthermore, opportunities to support women who have RRP may be missed because women may not identify with the term *rape* in the context of forced sex by an IP,<sup>26,27</sup> particularly in the context of other violence.<sup>24</sup> Abused women may acquiesce to reproductive coercion to avoid additional violence,<sup>24</sup> or they may not consider reproductive coercion as abusive, especially in cases where there is no history of physical violence in the relationship.<sup>14</sup>

Integrated and coordinated services in sexual and reproductive health and violence prevention may be valuable in addressing the scope and complexity of the intersections of rape and reproductive health. Improving timely access to affordable, confidential, quality sexual and reproductive health services can support women, particularly those who experience IPV. These services could include, for example, sexually transmitted infection testing and treatment, contraceptive counseling and services, including emergency contraception and prenatal care. These services may also prevent RRP and negative health outcomes for those who do become pregnant. Adopting a trauma-informed approach implementing routine assessment and harm-reduction counseling for IPV (including reproductive coercion) by family planning providers may help inform contraceptive counseling and referral to appropriate services, including prevention and care for IPV.<sup>26–29</sup> Additionally, IPV/SV service providers may consider integrating sexual and reproductive health services into their response efforts.<sup>30</sup>

Early prevention efforts with youth are essential. Of female rape victims, the majority first experienced rape under age 25 years.<sup>2</sup> Primary prevention efforts that help adolescent males develop healthy intimate relationships and a positive sense of masculinity,<sup>31,32</sup> for example, may be foundational to reducing rape and IPV (including reproductive coercion), as well as negative reproductive health outcomes. Healthy sexuality programs may also prevent sexual and dating violence, as they address some of the risk factors for these forms of violence.<sup>33</sup> In addition, empowerment-based training for young women may be beneficial to assess risks in relationships and reduce the chances of SV.<sup>34</sup> However, as the study by McFarlane and colleagues<sup>25</sup> points out, it would be unwise to ignore gender power dynamics and the fear and potential harm that can result in abusive relationships when women try to control their sexuality. A combination of prevention efforts will be important to address both gender power dynamics and sex education as part of a comprehensive approach.

It is important to note the challenges inherent in measuring RRP in the context of ongoing IPV including reproductive coercion, particularly if rape and consensual sex are both occurring in the relationship. In these circumstances it may not be possible for a victim to differentiate between consensual and forced sex, complicating the understanding of this phenomenon. This could explain why little research exists on this topic. NISVS presents a unique opportunity to examine RRP, given the measurement of rape, IPV, and pregnancy attributable to the rape, as well as the large sample size.

## Limitations

This study has some limitations. It only reaches those with a landline/cell phone, missing certain groups, such as transient, homeless, and institutionalized (e.g., prisoners) populations who may be at risk for SV. Second, the study was cross-sectional and the reproductive coercion items are asked about ever in lifetime, so analyses cannot show the direction of the relationship between RRP and reproductive coercion; however, the study design linked any reproductive coercion with perpetrator initials that enabled restriction of analysis to times when respondent was involved with a particular perpetrator. Third, this study likely underestimates the true prevalence of rape and reproductive coercion for various reasons (e.g., sensitive nature of the questions, victim safety concerns about disclosing). Relatedly, the measure of reproductive coercion is limited to two items, including one on refusing condom use that could be capturing control of sexual rather than reproductive health. Also, the use of contraceptives, which would moderate the relationship between rape and pregnancy, was not measured. Additionally, there were 11 respondents (excluded from analysis) who did not report vaginal penetration but indicated that they got pregnant, so there is a chance that there are additional cases for which pregnancy was not related to rape. However, the follow-up question of rape victims asks them, in effect, if the pregnancy was attributable to rape by the specific perpetrator. Finally, the exact age at the time of completed vaginal rape is unknown. The data set only included age at first and last completed or attempted penetrative SV victimization by each perpetrator. However, it is known that 96.3% of vaginal rape victims were of reproductive age (12–45 years) at the time of their first completed or attempted penetrative SV victimization; of these, 77.0% were aged 45 years or younger at the time of their last completed or attempted penetrative victimization.

## CONCLUSIONS

Integration of services for sexual and reproductive health with IPV/SV service providers can help ensure comprehensive care is available for rape survivors. However, a better way to avoid RRP is to focus on the primary prevention of rape, reproductive coercion, and other violence perpetration. Numerous strategies are effective in preventing rape and other SV.<sup>33</sup> Continued research to better understand and address the intersections of interpersonal violence and reproductive health is needed. For example, public health research and program portfolios on sexual and reproductive health may consider including IPV, and further explore the role of reproductive coercion in unintended pregnancy.

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**Table 1.**Lifetime Prevalence of RRP<sup>a</sup> by Race/Ethnicity,<sup>b</sup> U. S. Women, NISVS 2010–2012<sup>c</sup>

Variable	Weighted % (95% CI)	Estimated number of victims <sup>d</sup>
U.S. women	2.4 (2.1, 2.8)	2,872,000
Hispanic	2.8 (1.7, 4.6)	451,000
White non-Hispanic	2.2 (1.8, 2.6)	1,765,000
Black non-Hispanic	3.0 (2.2, 4.1)	445,000
Other <sup>e</sup> non-Hispanic	2.4 (1.4, 3.9)	212,000

<sup>a</sup> 11 respondents who reported pregnancy but did not report vaginal rape were excluded from the analysis.

<sup>b</sup> Race/ethnicity was self-identified. Individuals of Hispanic ethnicity can be of any race or combination of races.

<sup>c</sup> Average annual estimates.

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

<sup>e</sup> Includes Asian or Pacific Islander, American Indian or Alaska Native, and multiracial.

NISVS, National Intimate Partner and Sexual Violence Survey; RRP, rape-related pregnancy.

**Table 2.**Type<sup>a</sup> of Perpetrator Among Rape Victims Who Experienced RRP, NISVS 2010–2012<sup>b</sup>

Type of perpetrator	Weighted % (95% CI)	Estimated number of victims <sup>c</sup>
Current/former intimate partner	77.3 (71.5, 82.1)	2,219,000
Acquaintance <sup>d</sup>	13.9 (10.0, 19.0)	399,000
Stranger	5.3 (3.1, 8.7)	151,000

<sup>a</sup>Relationship is based on victims' reports of their relationships at the time the perpetrators first committed any violence against them. Categories are not mutually exclusive.

<sup>b</sup>Average annual estimates.

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

<sup>d</sup>Includes friends, neighbors, family friends, first date, someone briefly known, and people not known well.

NISVS, National Intimate Partner and Sexual Violence Survey; RRP, rape-related pregnancy.

**Table 3.**

Lifetime Reproductive Coercion Among Female Victims of Intimate Partner Vaginal Rape, NISVS 2010–2012<sup>a</sup>

Variable	Weighted % (95% CI)	Estimated number of victims <sup>b</sup>
Any reproductive coercion <sup>c</sup>	30.0 (26.3, 34.0)	2,544,000
Partner tried to get her pregnant or stop her from using birth control	19.6 (16.5, 23.2)	1,665,000
Partner refused to use a condom	23.3 (19.8, 27.3)	1,978,000

<sup>a</sup> Average annual estimates.

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

<sup>c</sup> Reproductive coercion categories are not mutually exclusive.

NISVS, National Intimate Partner and Sexual Violence Survey.

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Reproductive Coercion Among Female Victims of Intimate Partner Vaginal Rape by RRP,<sup>a</sup> NISVS 2010–2012<sup>b</sup>

Table 4.

Statistical measure	Any reproductive coercion		Partner tried to get her pregnant or stop her from using birth control		Partner refused to use a condom	
	RRP	No RRP	RRP	No RRP	RRP	No RRP
Weighted %	51.8	22.1	38.9	12.4	44.0	16.1
95% CI	42.1, 61.3	18.6, 26.0	29.6, 49.1	9.9, 15.4	34.2, 54.2	13.0, 19.7
Estimated number of victims <sup>c</sup>	994,000	1,366,000	746,000	766,000	844,000	995,000
<i>p</i> -value <sup>d</sup>	< 0.001		< 0.001		< 0.001	

Note: Boldface indicates statistical significance ( $p < 0.001$ ). Victims who experienced a rape with and a rape without pregnancy (multiple perpetrators) were excluded from analyses.

<sup>a</sup>Excludes 57 victims of multiple rapes that fell into both the pregnancy and no pregnancy categories, as well as 16 for which pregnancy status could not be determined.

<sup>b</sup>Average annual estimates.

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

<sup>d</sup>Wald  $\chi^2$  test.

NISVS, National Intimate Partner and Sexual Violence Survey; RRP, rape-related pregnancy.