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## Association of Contact Sexual Violence Victimization and Health in the U.S.

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### Abstract

**Introduction:** Sexual violence victimization is related to negative impacts, including chronic health conditions. Less is known about possible confounders of this relationship. This study examines the association between lifetime experience of contact sexual violence (CSV) and health conditions by sex, controlling for demographics and other victimization.

**Methods:** Data are from the 2016/2017 National Intimate Partner and Sexual Violence Survey, a nationally representative study of English- or Spanish-speaking adults. Ten health conditions (e.g., HIV/AIDS) and four activity limitations (e.g., difficulty dressing) were examined related to CSV victimization. Logistic regression models examined the association between CSV victimization and health controlling for demographics and other victimization experiences. Analyses were conducted in 2022 to 2023.

**Results:** For women and men, many health conditions and activity limitations were significantly associated with CSV after controlling for demographics. Accounting for other victimization, female CSV victims had higher odds of experiencing difficulty sleeping (Adjusted Odds Ratio [AOR]=1.3); difficulty concentrating, remembering, or making decisions (AOR=1.7); and difficulty doing errands alone (AOR=1.4) than nonvictims. Male victims had higher odds than nonvictims of having HIV/AIDS (AOR=5.2); frequent headaches (AOR=1.5); chronic pain (AOR=1.5); difficulty sleeping (AOR=1.4); serious difficulty hearing (AOR=1.3); and difficulty concentrating, remembering, or making decisions (AOR=1.5).

**Conclusions:** CSV had a negative impact on health, although other types of victimization appear to also have an impact, especially for women. Demographic characteristics also aid the understanding of the relationship between CSV and health. Efforts to prevent CSV and other

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#### CREDIT AUTHOR STATEMENT

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forms of violence can be coupled with healthcare- and population-level approaches to improve long-term health.

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## INTRODUCTION

The prevalence and health impacts of sexual violence (SV) have been well documented in the literature.<sup>1–4</sup> Nationally representative data from 2016 to 2017 reveal that more than half of U.S. women (54.3%) and almost a third of U.S. men (30.7%) report some form of contact SV (CSV) victimization in their lifetime.<sup>1</sup> These forms of victimization can include rape (i.e., forced or alcohol/drug facilitated completed or attempted penetration), sexual coercion (i.e., nonphysically forced unwanted penetration), or unwanted sexual contact (i.e., sexual touch without penetration) of women and men, or male experiences of being made to sexually penetrate someone else. For example, about 1 in 4 women (26.8%) report rape and approximately 1 in 9 men (10.7%) report being made to penetrate someone at some point in life. The other forms of CSV are equally or more prevalent, with 1 in 4 women (23.6%) and 1 in 9 men (10.9%) reporting lifetime sexual coercion, and 1 in 2 (47.6%) women and 1 in 4 men (23.3%) reporting lifetime unwanted sexual contact.<sup>1</sup>

SV victimization has been linked with negative health conditions and health risk behaviors, in both adults and youth.<sup>5–9</sup> Some studies have also suggested that male victims of SV report greater symptomology than female victims,<sup>4,7</sup> and among youth victims, the association of SV with risky behaviors was found in one nationally representative study to be stronger among male compared with female victims.<sup>6</sup> However, another nationally representative study found no sex differences in emotional and behavioral problems for those who experienced child sexual abuse.<sup>10</sup>

Sometimes SV victimization occurs in the context of other victimization, either across the lifetime by different perpetrators, or by the same perpetrator (e.g., intimate partner violence [IPV]). For example, nationally representative data from 2010 showed that 12.5% of women experienced three forms of IPV—physical violence, rape, and stalking violence—across relationships in their lifetime.<sup>11</sup> The same study also found that 6.2% of women reported both physical violence and rape by the same intimate partner, and 3.5% reported physical violence, rape, and stalking violence by the same partner. Too few men reported multiple forms of IPV across relationships or within the same intimate partner relationship to produce stable estimates.<sup>11</sup> However, the Breiding et al. study<sup>11</sup> indicates that for some victims, particularly female victims, SV victimization may co-occur with other forms of victimization. Gilbert et al. examined the association between IPV victimization (sexual, physical, stalking and/or psychological) and health conditions and found that as the number of forms of IPV victimization increased, the prevalence of each health condition increased, suggesting there may be some cumulative health impacts of polyvictimization, at least in the context of IPV.<sup>12</sup>

Although SV (in and outside the context of IPV) has been linked to negative health, it is less clear why there is an association with some negative health conditions but not others. Some scholars have theorized that the reason SV victimization is associated with negative health conditions is because of the physiological impact that trauma and stress have on

the body, impacting not just mental but also physical health.<sup>13</sup> This would suggest that those with a history of SV victimization would report negative health conditions, which is generally supported by the literature.<sup>1,7,8</sup> However, a recent report<sup>1</sup> had some unexpected findings; it indicated that, compared to nonvictims, the prevalence of 5 out of 10 health conditions were higher for female CSV victims, but 2 health conditions, diabetes and high blood pressure, were lower for female CSV victims. A similar pattern was found for male victims except that high blood pressure was not associated with male CSV victimization. It is unclear why diabetes and high blood pressure were negatively associated with CSV victimization given the frequent association between trauma and health. These unexpected findings suggest that other factors might help explain this relationship, such as age, since chronic health conditions are more likely at advanced ages,<sup>14</sup> or other types of victimization, since there may be cumulative impacts from polyvictimization.<sup>12</sup> Previous research has also suggested that racial and ethnic minority groups, such as non-Hispanic Black persons and Hispanic persons, may be disproportionately burdened by violence victimization<sup>1,15</sup> and have less access to healthcare which could exacerbate the impacts of violence,<sup>16,17</sup> possibly confounding the relationship between victimization and health conditions. The purpose of this paper is to elaborate on the findings from the previously published report described above.<sup>1</sup> Although cause and effect cannot be determined, the current study seeks to examine the association between lifetime history of CSV and numerous chronic health conditions and activity limitations, stratified by sex and controlling for key demographic variables and other types of victimization in order to explore possible confounders between CSV and negative health conditions.

## METHODS

### Study Population

The National Intimate Partner and Sexual Violence Survey (NISVS) is an ongoing, nationally representative survey of U.S. adults. Participants of the 2016/2017 NISVS were selected through random-digit-dial sampling with a dual frame of both landlines and cell phones. Noninstitutionalized English- or Spanish-speaking adults are eligible for participation. The 2016/2017 data were collected between September 2016 and May 2017. The response rate was 7.6% and the cooperation rate was 58.6%. A total of 15,152 women and 12,419 men completed the survey. Institutional Review Board approval was received by the contractor for this study, RTI International. Additional details about the data collection methods are described elsewhere.<sup>18</sup>

### Measures

The following measure of sexual violence was used as the main exposure variable in analyses: CSV ever in lifetime (including rape, being made to penetrate [males only], sexual coercion, and unwanted sexual contact). See Table 1 for a description of this variable.

Ten lifetime measures of health conditions and 4 activity limitations were considered. These included being diagnosed with a chronic health condition (e.g., asthma, diabetes), as well as other health problems such as frequent headaches or difficulty sleeping. Examples of activity

limitations are difficulty walking or doing errands alone. Table 1 includes descriptions of all health conditions and activity limitations measured in this study.

The following variables were considered as potential confounders between the relationship of CSV and health: age at the time of the survey; educational attainment, race/ethnicity, and 4 other victimization types (stalking by any perpetrator, verbal sexual harassment by any perpetrator, psychological aggression by an intimate partner, and physical violence by an intimate partner; all measures used CDC operational definitions) (Table 1).

### Statistical Analysis

Analysis began with a crude model to assess the association between CSV and each health condition and activity limitation. Guided by preliminary analyses and previous literature, it was then examined whether the crude association might be confounded by demographic characteristics and other types of victimization. This was done by adjusting for the demographic variables separately to identify the demographic variables that were contributing to CSV and health. Then three demographic variables were simultaneously controlled for and the final model controlled for demographic variables and other types of victimization simultaneously. SUDAAN (version 11.01) statistical software was used for logistic regression analysis to account for the complex survey design features that were implemented in the 2016/2017 NISVS (e.g., dual-sampling design, unequal probability of sample selection). A significant statistical association was identified when the 95% confidence interval of the adjusted odds ratio did not contain 1.

## RESULTS

Demographic characteristics among CSV victims are shown in Table 2. Age of adults at the time of the survey was similarly distributed for male and female victims. Non-Hispanic White persons accounted for about 65% of male and 69% of female CSV victims. About a quarter of both male (25.7%) and female (27.5%) victims had a technical degree/some college and 27.7% of male and 21.2% of female victims had a high school diploma/GED as the highest level of educational attainment. Nearly half of victims (42.5% of male and 46.2% of female victims) were married.

The crude model results were included for reference. Controlling for age, race/ethnicity, and education individually (data not shown) had small effects on the association between CSV and health conditions/activity limitation with a few exceptions. For example, for women, no significant associations between CSV and diabetes or high blood pressure were observed once controlling for age alone.

Table 3 shows the unadjusted odds ratios and adjusted odds ratios (AOR) for health conditions and activity limitations for female victims of CSV. Adjusting for age, race/ethnicity, and education showed significantly higher odds for CSV victims compared to nonvictims for many of the same health conditions—asthma, irritable bowel syndrome, frequent headaches, chronic pain, and difficult sleeping. In addition, victims had significantly higher odds for all measured activity limitations. In the final model where demographics and other victimization were controlled simultaneously, female victims of

CSV had higher odds for only one health condition: difficulty sleeping, and only two activity limitations: difficulty concentrating, remembering, or making decisions and difficulty doing errands alone.

Table 4 shows the unadjusted and adjusted odds ratios for health conditions/activity limitations for male victims of CSV. After controlling for age, race/ethnicity, and education, victims had significantly higher odds of 11 of the 14 health conditions and activity limitations. Once additionally controlling for other types of victimization, male victims had higher odds of experiencing HIV/AIDS; frequent headaches; chronic pain; difficulty sleeping; serious difficulty hearing; and difficulty concentrating, remembering, or making decisions. Health conditions that remained significant in every model include HIV/AIDS, frequent headaches, chronic pain, difficulty sleeping, and serious difficulty hearing. Asthma was significant in every model except the final model. Of the activity limitations, difficulty concentrating, remembering, or making decisions was significant in each model. Difficulty dressing/bathing and difficulty doing errands alone were significant in all but the final model. Similar to high blood pressure, serious difficulty walking or climbing stairs was only significant in the models adjusting for age, race/ethnicity, and education.

## DISCUSSION

SV is an urgent public health problem because it is both very common and takes a toll on survivors' mental and physical health. A deeper understanding of the association between CSV and health is aided by examining demographic characteristics and experiences of other types of victimization that may confound or further explain the relationship.

Overall, when adjusting for demographic variables, there were slight changes between the adjusted and unadjusted models. Both female and male victims of CSV had significantly higher odds of experiencing serious difficulty walking or climbing stairs. After taking into consideration demographic characteristics, male victims of CSV had higher odds of having high blood pressure whereas female victims no longer had lower odds of diabetes and high blood pressure relative to nonvictims, suggesting that demographic characteristics help explain the relationship between CSV victimization and these particular health conditions.

Other types of victimization appear to have an impact on the association between CSV and health. At least for women, other types of victimization seem to be influencing the relationship. Once other types of victimization are controlled for, the associations between CSV victimization and most of the health conditions and activity limitations go away. Only one health condition and two activity limitations (difficulty sleeping, concentrating/remembering, and doing errands) remain significantly associated with female CSV victimization. Interestingly, for men, five health conditions and 1 activity limitation were still significantly associated with CSV, suggesting that other types of victimization do not explain as much of the association with health for men as for women.

These findings shed additional light on the relationship between victimization and health. It appears that a combination of demographic characteristics and other types of victimization play a role in understanding this relationship, particularly for women. Intermediate models

(not shown) that examined each demographic variable individually revealed that age seemed to affect the association between CSV and diabetes and high blood pressure for women, supporting other research that indicates that older persons are more likely to have these chronic health conditions.<sup>14,19,20</sup> Regarding the impact of other types of victimization, prior studies show that female victims of violence are more likely than male victims to have had other victimization experiences, and those cumulative victimization experiences might affect the association with negative health. This is supported by previous work that found IPV polyvictimization was more common among female than male victims<sup>11,21</sup> and that there might be a cumulative impact of victimization on health.<sup>12</sup> The current study's findings suggest that male CSV victimization, in particular, is associated with several negative health indicators, which is potentially because males may have had less history of other forms of victimization<sup>11</sup> so controlling for the other types of victimization measured in this study is not as impactful. It could also be that males who report CSV victimization at some point in life are more likely to have previously denied or minimized the abuse, given male socialization patterns, and to not have received help after the sexual trauma and this could have exacerbated the impact of the victimization on their health.<sup>22</sup> Prior research has described multiple barriers to male disclosure of SV which can delay help seeking and early identification of victimization.<sup>23</sup>

Future research that can examine individual forms of CSV separately to understand what subtypes of CSV are strongly associated with negative health would be helpful for prevention efforts. Research would also be useful that separates the context and types of interpersonal violence victimization that are most influencing the relationship with negative health. It could be CSV in the context of IPV, other forms of IPV, CSV by any perpetrator, or a combination of victimization experiences that best explain the impact on health, and it would be helpful to prevention efforts to better understand that. Longitudinal designs with large sample sizes to examine and isolate many different forms of victimization would aid this research.

Reducing CSV victimization and its long-term health consequences are public health priorities to improve the nation's health, reduce healthcare costs, and lessen other systemic impacts. The best way to reduce the negative health impacts of CSV and other victimization is to prevent this victimization before it happens. Primary prevention of CSV and other interpersonal violence starting in adolescence may have the most impact on reducing the costs and burden of these types of violence on victims and the healthcare system. Resources are available that describe prevention strategies and approaches with the best available evidence to consider in a comprehensive effort to prevent CSV.<sup>24</sup> Equally important is recognizing that adults with chronic health conditions and disabilities might have a history of victimization experiences that could be having a cumulative toll on their health. Addressing the needs of sexual and other interpersonal violence victims is important and the healthcare setting can be a good context for this, and this is consistent with the U.S. Preventive Services Task Force recommendations for healthcare provider screener for IPV among reproductive age women.<sup>25</sup> In addition, studies have found that women desire to be screened in the healthcare setting and direct inquiry in the healthcare setting is important given barriers to disclosing,<sup>26</sup> particularly among male victims.<sup>23</sup> Also, those who suffer from chronic health conditions or have disabilities may have higher utilization of healthcare.

Healthcare providers may be able to offer a venue to treat both the health issues, as well as offer resources to help with recovering from and preventing further victimization. However, Littleton and colleagues<sup>27</sup> found that cultural, educational, and linguistic factors impact screening practices for SV in health care settings, so more work may be needed to make sure all survivors can benefit from what healthcare can offer.

### Limitations

This study has several limitations. The sample consists of noninstitutionalized women and men but does not include potentially high-risk groups, such as incarcerated or homeless persons. Second, due to the cross-sectional nature, directionality cannot be determined between CSV and the health conditions. For example, it is not known whether the health condition was present at the time the victimization occurred. The lack of any temporal information about the onset of a health condition and CSV victimization prevents us from claiming that the health conditions and activity limitations were the direct consequences of the experiences of violence victimization or whether the health condition increased one's vulnerability to victimization. Longitudinal studies may provide valuable information about these pathways. Third, the CSV victimization estimates are considered underestimates. Due to the sensitive nature of the survey questions, some adults may not have felt comfortable disclosing their victimization due to stigma, shame, distress, or potentially a close proximity of the perpetrator during the administration of the survey. Additionally, the analyses are limited to the health conditions measured in the survey. Future studies should consider examining additional health conditions such as depression, anxiety, and substance use. Fourth, the overall 2016/2017 NISVS response rate was low which might introduce bias. However, the cooperation rate indicates that almost 6 out of 10 eligible adults chose to participate in the survey, and about 96% of those who terminated the survey early did so prior to hearing the introduction to the violence-related questions. Fifth, the 2016/2017 NISVS is a self-report survey, which is subject to misremembering of details or not recalling events that happened a long time ago, which could have led to underreporting.

### CONCLUSIONS

CSV is associated with negative health conditions and activity limitations in women and men. Demographic characteristics, like age, race/ethnicity, and education may help explain certain relationships, such as those between CSV and diabetes and high blood pressure, and serious difficulty walking or climbing stairs. Experiencing other forms of interpersonal violence appears to explain the presence of certain health conditions or activity limitations, particularly for women, who previous studies have shown often experience multiple forms of victimization. Comprehensive efforts to prevent CSV along with other forms of interpersonal violence can be coupled with other healthcare- and population-level strategies to improve long-term health. Together, these preventive efforts may help to prevent violence in the first place, prevent violence revictimization, and mitigate the impact of victimization on health.

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**Table 1.**

**Analytic and Control Variables Used in the Study**

| Variables                                       | Definitions  |
|---|--|
| <b>Analytic variables</b>                       |  |
| Contact sexual violence (CSV)                   | Combined measure that includes rape, being made to penetrate someone else (measured among men only), sexual coercion, and unwanted sexual contact.   |
| Rape  | Any completed or attempted unwanted vaginal (women), oral, or anal penetration through the use of physical force or threats to physically harm and also includes times when the victim was too drunk, high, drugged, or passed out and unable to consent.  |
| Being made to penetrate                         | Experiences when the victim was made, or an attempt was made, to sexually penetrate someone else without the victim's consent due to physical force, being threatened with physical harm, or when the victim was too drunk, high, drugged, or passed out and unable to consent.  |
| Sexual coercion                                 | Unwanted sexual penetration that occurred after the victim was pressured in a nonphysical way. How many people have you had vaginal, oral, or anal sex with after they pressured you by doing any of the following? (a) Telling you lies, making promises about the future they knew were untrue, threatening to end your relationship, or threatening to spread rumors about you? (b) Wearing you down by repeatedly asking for sex, or showing they were unhappy? (c) Using their influence or authority over you, for example, your boss or your teacher? |
| Unwanted sexual contact                         | Unwanted sexual experiences involving touch but not sexual penetration: How many people have ever... (a) kissed you in a sexual way when you did not want it to happen? (b) fondled, groped, grabbed, or touched you in a sexual way when you did not want it to happen?   |
| <b>Control variables</b>                        |  |
| <b>Demographic characteristics</b>              |  |
| Current age                                     | 18–24; 25–34; 35–44; 45–54; 55–64, and 65 years or older   |
| Educational attainment                          | High school or less; high school graduate / GED; technical or vocational school (attended or graduated) or some college; Associate (2-year) degree; Bachelor's (4-year) degree; postgraduate degree.   |
| Ethnicity                                       | Hispanic; not Hispanic   |
| Race  | White; Black or African American; Asian; Native Hawaiian or Pacific Islander; American Indian or Alaska Native; Other (specify); Multiracial (selection of 2 or more racial groups)  |
| Health conditions                               | Have you ever been told by a doctor, nurse, or other health professional that you had (a) asthma? (b) Irritable Bowel Syndrome or IBS? (c) diabetes? (d) high blood pressure? (e) HIV/AIDS? (f) Do you have frequent headaches? (g) Do you have chronic pain? (h) Do you have difficulty sleeping? (i) Do you have serious difficulty hearing? (j) Are you blind or do you have serious difficulty seeing, even when wearing glasses?  |
| Activity limitation                             | (a) Do you have serious difficulty walking or climbing stairs? (b) Do you have difficulty dressing or bathing? (c) Because of a physical, mental, or emotional condition, do you have difficulty concentrating, remembering or making decisions? (d) Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?   |
| <b>Other violence victimization</b>             |  |
| Physical violence by an intimate partner        | How many of your current or ex-romantic or sexual partners have EVER ... slapped, pushed or shoved, hit with a fist or something hard, kicked, hurt by pulling hair, slammed against something, tried to hurt by choking or suffocating, beaten, burned on purpose, used a knife on them, used a gun on them   |
| Verbal sexual harassment by any perpetrator     | While you were in a public place, how many people have ever verbally harassed you in a sexual way that made you feel uncomfortable?  |
| Psychological aggression by an intimate partner | How many of your current or ex-romantic or sexual partners have EVER ... insulted, humiliated, or made fun of in front of others, kept you from having your own money, tried to keep you from seeing or talking to your family or friends, made threats to physically harm you, threatened to hurt themselves or commit suicide because they were upset with you, made decisions for you that should have been yours to make, and destroyed something that was important to you  |

**Variables**

Stalking by any perpetrator (Intimate or nonIntimate)

Has anyone ever... (a) followed you around and watched you when you did not want them to? (b) approached you or showed up in places, such as your home, work, or school when you did not want them to? (c) used GPS technology or equipment to monitor or track your location when you did not want them to? This Includes GPS technology used in a phone or in social media, such as Facebook? (d) left strange or potentially threatening items for you to find? (e) sneaked into your home or car and did things to scare you by letting you know they had been there? (f) used technology such as a hidden camera, recorder, or computer software to spy on you from a distance? (g) made unwanted phone calls to you, including hang-ups and voice messages? (h) sent you unwanted text messages, photo messages, emails, or messages through Facebook, Twitter, or other social media? (I) sent you cards, letters, flowers, or presents when they knew you didn't want them to?

Follow-up questions were asked among those who experienced the tactics more than once by the same perpetrator; they were asked whether the perpetrator made them feel fearful, threatened, or concerned for their safety or the safety of others or made threats of physical harm.

A person was considered a stalking victim if they experienced any of the stalking tactics on more than one occasion and by the same perpetrator and felt fearful, threatened, or concerned for their own safety or the safety of others as a result of the perpetrator's behavior.

**Definitions**

Demographic, Other Violence, and Health Conditions/Limitations Distribution of Contact Sexual Violence Victims, NISVS 2016/2017

Table 2.

| Demographic, other violence, or health condition | Female victims, weighted % | Male victims, weighted % |
|--|----------------------------|--------------------------|
| Age group  |                            |                          |
| 18–24  | 13.1                       | 15.2                     |
| 25–34  | 18.0                       | 23.2                     |
| 35–44  | 17.0                       | 17.7                     |
| 45–54  | 17.2                       | 16.5                     |
| 55–64  | 19.5                       | 16.6                     |
| 65 and older                                     | 15.2                       | 10.9                     |
| Race/ethnicity                                   |                            |                          |
| NH Black   | 11.5                       | 12.8                     |
| Hispanic   | 11.0                       | 14.7                     |
| NH others  | 8.2                        | 7.4                      |
| NH White   | 69.3                       | 65.1                     |
| Education  |                            |                          |
| Less than high school                            | 7.5                        | 9.1                      |
| High school graduate/GED                         | 21.2                       | 27.7                     |
| Technical school, some college                   | 27.5                       | 25.7                     |
| Associate degree                                 | 13.3                       | 13.5                     |
| College graduate                                 | 17.1                       | 13.1                     |
| Postgraduate                                     | 13.3                       | 10.7                     |
| Income   |                            |                          |
| <\$10,000  | 6.1                        | 7.4                      |
| \$10,000–\$14,999                                | 5.5                        | 5.1                      |
| \$15,000–\$19,999                                | 8.2                        | 7.2                      |
| \$20,000–\$24,999                                | 9.8                        | 9.0                      |
| \$25,000–\$34,999                                | 9.3                        | 9.6                      |
| \$35,000–\$49,999                                | 11.4                       | 10.5                     |
| \$50,000–\$74,999                                | 13.7                       | 11.7                     |
| \$75,000 +                                       | 27.4                       | 31.0                     |

| Demographic, other violence, or health condition          | Female victims, weighted % | Male victims, weighted % |
|---|----------------------------|--------------------------|
| Marital status  |                            |                          |
| Married   | 46.2                       | 42.5                     |
| Divorced  | 14.9                       | 11.7                     |
| Separated   | 3.1                        | 2.4                      |
| Widowed   | 7.0                        | 1.9                      |
| Never married   | 21.1                       | 34.0                     |
| Not married but living with a partner                     | 7.2                        | 7.3                      |
| Violence type <sup>a</sup>                                |                            |                          |
| Contact sexual violence                                   | 54.3%                      | 30.7%                    |
| Rape by any perpetrator                                   | 49.4%                      | 12.4%                    |
| Made to penetrate by any perpetrator                      | <i>b</i>                   | 34.8%                    |
| Physical violence by an intimate partner                  | 57.8%                      | 62.6%                    |
| Verbal sexual harassment by any perpetrator               | 47.1%                      | 26.3%                    |
| Psychological aggression by an intimate partner           | 68.3%                      | 69.1%                    |
| Stalking by any perpetrator                               | 46.6%                      | 33.0%                    |
| Health condition  |                            |                          |
| Asthma  | 23.1%                      | 18.6%                    |
| Irritable bowel syndrome                                  | 12.9%                      | 4.2%                     |
| Diabetes  | 11.4%                      | 10.9%                    |
| High blood pressure                                       | 27.7%                      | 30.2%                    |
| HIV/AIDS  | <i>c</i>                   | 2.6%                     |
| Frequent headaches  | 24.2%                      | 15.9%                    |
| Chronic pain  | 32.4%                      | 29.8%                    |
| Difficulty sleeping                                       | 40.3%                      | 36.5%                    |
| Serious difficulty hearing                                | 7.7%                       | 12.4%                    |
| Blindness or serious difficulty seeing                    | 5.7%                       | 5.3%                     |
| Activity limitation                                       |                            |                          |
| Serious difficulty walking or climbing stairs             | 17.0%                      | 12.7%                    |
| Difficulty dressing or bathing                            | 5.5%                       | 5.2%                     |
| Difficulty concentrating, remembering or making decisions | 21.7%                      | 20.4%                    |
| Difficulty doing errands alone                            | 11.6%                      | 9.4%                     |

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<sup>a</sup>For all violence types except contact sexual violence, the percent represents the proportion among victims of contact sexual violence. For contact sexual violence, the percent is the proportion among all victims.

<sup>b</sup>Not measured among women.

<sup>c</sup>Estimate is not reported; relative standard error > 30% and cell size < 20.

NH = non-Hispanic; NISYS = National Intimate Partner and Sexual Violence Survey.

**Table 3.** Association of Contact Sexual Violence<sup>a</sup> Victimization With Health Conditions/Limitations, U.S. Women, NISVS 2016/2017

| Health conditions and activity limitations                | Unadjusted<br>OR (95% CI)   | Adjusted (age, race/ethnicity, education)<br>AOR <sup>c</sup> (95% CI) | Final (age, race/ethnicity, education, other types of victimization)<br>AOR <sup>d</sup> (95% CI) |
|---|-----------------------------|--|---|
| Health condition <sup>b</sup>                             |                             |  |   |
| Asthma  | 1.5 (1.3, 1.7) <sup>e</sup> | 1.4 <sup>e</sup> (1.2, 1.7)  | 1.2 (1.0, 1.4)  |
| Irritable bowel syndrome                                  | 1.9 (1.6, 2.3) <sup>e</sup> | 1.9 <sup>e</sup> (1.5, 2.2)  | 1.2 (1.0, 1.6)  |
| Diabetes  | 0.7 (0.6, 0.9) <sup>e</sup> | 0.9 (0.8, 1.1)   | 0.8 (0.7, 1.0)  |
| High blood pressure                                       | 0.8 (0.7, 0.9) <sup>e</sup> | 1.1 (0.9, 1.2)   | 1.0 (0.9, 1.2)  |
| Frequent headaches  | 1.6 (1.4, 1.8) <sup>e</sup> | 1.6 <sup>e</sup> (1.4, 1.9)  | 1.1 (0.9, 1.3)  |
| Chronic pain  | 1.6 (1.4, 1.9) <sup>e</sup> | 1.9 <sup>e</sup> (1.7, 2.2)  | 1.2 (1.0, 1.4)  |
| Difficulty sleeping                                       | 1.9 (1.7, 2.2) <sup>e</sup> | 2.2 <sup>e</sup> (1.9, 2.5)  | 1.3 (1.1, 1.5) <sup>e</sup>   |
| Serious difficulty hearing                                | 1.0 (0.8, 1.2)              | 1.2 (1.0, 1.5)   | 1.0 (0.7, 1.3)  |
| Blindness or serious difficulty seeing                    | 1.0 (0.8, 1.2)              | 1.2 (0.9, 1.5)   | 1.0 (0.7, 1.3)  |
| Activity limitation                                       |                             |  |   |
| Serious difficulty walking or climbing stairs             | 1.0 (0.8, 1.1)              | 1.4 (1.2, 1.6) <sup>e</sup>  | 0.9 (0.8, 1.1)  |
| Difficulty dressing or bathing                            | 1.5 (1.1, 2.0) <sup>e</sup> | 1.9 (1.4, 2.5) <sup>e</sup>  | 1.3 (1.0, 1.8)  |
| Difficulty concentrating, remembering or making decisions | 2.4 (2.0, 2.9) <sup>e</sup> | 2.8 (2.3, 3.4) <sup>e</sup>  | 1.7 (1.4, 2.1) <sup>e</sup>   |
| Difficulty doing errands alone                            | 1.7 (1.4, 2.1) <sup>e</sup> | 2.0 (1.6, 2.5) <sup>e</sup>  | 1.4 (1.1, 1.8) <sup>e</sup>   |

<sup>a</sup>Contact sexual violence includes rape, sexual coercion, and/or unwanted sexual contact.

<sup>b</sup>The results for HIV / AIDS for female CSV victims were suppressed and not included in this table because of insufficient subsample size which prevented the authors from generating statistically stable prevalence estimates and assessing odds ratios through modeling.

<sup>c</sup>Controlling for age, race/ethnicity, and education simultaneously.

<sup>d</sup>Controlling for age, race/ethnicity, education, stalking by any perpetrator, verbal sexual harassment by any perpetrator, psychological aggression by an intimate partner, and physical violence by an intimate partner simultaneously.

<sup>e</sup>The 95% confidence interval of the odds ratio does not include 1.

AOR = adjusted odds ratio; NISVS = National Intimate Partner and Sexual Violence Survey.

**Table 4.** Association of Contact Sexual Violence<sup>a</sup> Victimization With Health Conditions/Limitations, U.S. Men, NISVS 2016/ 2017

| Health conditions and activity limitations                | Unadjusted<br>OR (95% CI)    | Adjusted (age, race/ ethnicity, education)<br>AOR <sup>b</sup> (95% CI) | Final (age, race/ethnicity, education, other types of victimization)<br>AOR <sup>c</sup> (95% CI) |
|---|------------------------------|---|---|
| Health condition  |                              |   |   |
| Asthma  | 1.4 (1.2, 1.7) <sup>d</sup>  | 1.3 (1.1, 1.6) <sup>d</sup>   | 1.2 (1.0, 1.4)  |
| Irritable bowel syndrome                                  | 1.2 (0.9, 1.7)               | 1.3 (0.9, 1.8)  | 1.1 (0.8, 1.6)  |
| Diabetes  | 0.8 (0.7, 1.0)               | 1.1 (0.9, 1.3)  | 1.0 (0.8, 1.2)  |
| High blood pressure                                       | 1.0 (0.9, 1.1)               | 1.3 (1.1, 1.5) <sup>d</sup>   | 1.2 (1.0, 1.4)  |
| HIV/AIDS  | 6.8 (3.8, 12.1) <sup>d</sup> | 6.7 (3.8, 11.9) <sup>d</sup>  | 5.2 (2.4, 11.3) <sup>d</sup>  |
| Frequent headaches  | 2.1 (1.7, 2.6) <sup>d</sup>  | 2.0 (1.7, 2.5) <sup>d</sup>   | 1.5 (1.1, 1.9) <sup>d</sup>   |
| Chronic pain  | 1.7 (1.5, 2.0) <sup>d</sup>  | 2.0 (1.7, 2.3) <sup>d</sup>   | 1.5 (1.2, 1.8) <sup>d</sup>   |
| Difficulty sleeping                                       | 2.0 (1.7, 2.3) <sup>d</sup>  | 2.0 (1.7, 2.3) <sup>d</sup>   | 1.4 (1.2, 1.7) <sup>d</sup>   |
| Serious difficulty hearing                                | 1.3 (1.1, 1.6) <sup>d</sup>  | 1.7 (1.4, 2.1) <sup>d</sup>   | 1.3 (1.1, 1.7) <sup>d</sup>   |
| Blindness or serious difficulty seeing                    | 1.2 (0.9, 1.6)               | 1.4 (1.0, 1.9)  | 0.9 (0.7, 1.3)  |
| Activity limitation                                       |                              |   |   |
| Serious difficulty walking or climbing stairs             | 1.1 (0.9, 1.4)               | 1.5 (1.3, 1.9) <sup>d</sup>   | 1.2 (1.0, 1.5)  |
| Difficulty dressing or bathing                            | 1.6 (1.2, 2.2) <sup>d</sup>  | 2.0 (1.5, 2.7) <sup>d</sup>   | 1.4 (1.0, 2.0)  |
| Difficulty concentrating, remembering or making decisions | 2.3 (1.9, 2.7) <sup>d</sup>  | 2.3 (1.9, 2.7) <sup>d</sup>   | 1.5 (1.2, 1.9) <sup>d</sup>   |
| Difficulty doing errands alone                            | 1.8 (1.4, 2.2) <sup>d</sup>  | 1.9 (1.5, 2.5) <sup>d</sup>   | 1.2 (0.9, 1.6)  |

<sup>a</sup>Contact sexual violence Includes rape, being made to penetrate someone else, sexual coercion, and/or unwanted sexual contact.

<sup>b</sup>Controlling for age, race/ethnicity, and education simultaneously.

<sup>c</sup>Controlling for age, race/ethnicity, education, stalking by any perpetrator, verbal sexual harassment by any perpetrator, psychological aggression by an intimate partner, and physical violence by an intimate partner simultaneously.

<sup>d</sup>The 95% confidence interval of the odds ratio does not include 1.

AOR = adjusted odds ratio; NISVS = National Intimate Partner and Sexual Violence Survey.