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Adverse Health Outcomes, Perpetrator Characteristics, and Sexual Violence Victimization Among U.S. Adult Males

Ekta Choudhary,[1] Jeffrey Coben,[1] and Robert M. Bossarte[1]

Abstract

In the United States, an estimated three million men are victims of sexual violence each year, yet the majority of existing studies have evaluated the consequences and characteristics of victimization among women alone. The result has been a gap in the existing literature examining the physical and psychological consequences of sexual assault among men. The main objective of this study was to identify health outcomes, risk behaviors, and perpetrator/victim relationship characteristics among men who have experienced an attempted or completed sexual assault using data from the sexual violence module of the Behavioral Risk Factor Surveillance System survey. A total of 59,511 male respondents participated in the sexual violence module, and the majority of participants were White (73.7%), between the ages of 35 to 44 years (19.8%), married (69.0%), graduated from college (34.6%), and had an annual household income of more than US$50,000 (49.9%). Stratified multivariate logistic regression models were conducted to test the associations between victimization and health outcomes and risk behaviors controlling for age, marital status, race/ethnicity, income, education,

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and other potential confounders. Results of these analyses suggest important associations between health and sexual violence victimization. Specifically, men who reported unwanted attempted intercourse and attempted and completed intercourse were more likely to report poor mental health, poor life satisfaction, activity limitations, and lower emotional and social support. The current study extends knowledge of consequences of male sexual violence by considering characteristics of sexual assault and by identifying associations between victimization and a broad range of health indicators.

Keywords

sexual assault, violence, male victimization, health outcomes, risk behavior

It has been estimated that sexual violence victimization affects approximately three million men in the United States each year (Tjaden & Thoennes, 2006). Despite a growing awareness of the consequences of sexual assault, sexual violence victimization has not been studied among men in the general U.S. population as frequently or with the level of detail present in studies of victimization among women. Existing studies have evaluated various aspects of sexual violence victimization among women alone (Koss, Koss, & Woodruff, 1991; Leserman, 2005; Tjaden & Thoennes, 2006), and a limited number of previous studies have identified differences and/or similarities in demographic characteristics and health outcomes associated with sexual violence victimization among male and female victims (Basile, Chen, Black, & Saltzman, 2007; Choudhary, Coben, & Bossarte, 2008). However, our current knowledge of the consequences of male sexual assault has relied heavily on results from studies of female victimization. Previous studies have suggested that part of the reason for the existing discrepancy in research on male victimization may be due to questions about the nature of unwanted intercourse among men (Davies, Pollard, & Archer, 2006), especially involving those assaulted by a female perpetrator (Mezey & King, 1989; Smith, Pine, & Hawley, 1988; Tewksbury, 2007). Furthermore, researchers who have studied the consequences of male sexual assault have focused primarily on childhood victimization or men in sexually segregated institutions such as prison (Davis, 2002; Isely & Gehrenbeck-Shim, 1997).

It has been suggested that sexual assault among men, in comparison to women, may be seriously underreported (King & Woollett, 1997), and the true prevalence of male sexual violence victimization may not be known. Underreporting by men is believed to be the result of social beliefs about vulnerability and masculinity and may be influenced by reporting patterns

associated with sexual orientation and age at the time of victimization (Davis, 2002; Ellis, 2002; Rentoul & Appleboom, 1997). For example, Walker and colleagues (2005b) reported that more than 50% of male victims in their sample did not disclose their victimization for at least a year, and approximately 12% never disclosed it to anyone. Past studies have suggested that gay and/or bisexual men are more likely to report sexual violence victimization when compared to heterosexual men (Coker et al., 2002; Comstock, 1989). Commonly held perceptions of vulnerability, sexual orientation, and stigma associated with victimization may contribute to differences in the identification of victimized populations and limit our understanding of the consequences of sexual violence victimization among men. For example, in a recent review of existing literature, Tewksbury (2007) suggested that past studies have produced widely varying estimates of lifetime sexual assault among men (range = 3.8%-22.2%).

Various clinical studies have estimated the percentage of male victims of sexual violence to be between 6% and 12% (King & Woollett, 1997; Mezey & King, 1989; Walker, Archer, & Davies, 2005b). However, the ability of these studies to produce generalizable findings may be limited by the characteristics of small clinical samples. A majority of studies reporting on the prevalence of male sexual assault and associated adverse health outcomes have obtained their samples from mental health or trauma clinics (Leserman, 2005; Walker, Archer, & Davies, 2005a). Comparatively few studies have explored the physical and psychological consequences of sexual assault among men in the general population.

Previous research has suggested that adult male victims of sexual assault are likely to report a number of physical and mental health problems (Walker et al., 2005b). Specifically, male victims may be more likely to experience a severe physical assault and may only seek treatment from a medical facility when seriously injured (Tewksbury, 2007; Tjaden & Thoennes, 2006). Men who were forced to have sex against their will as adults may be more likely to experience posttraumatic stress disorder, depression, anxiety, anger, self-blame, and emotional distancing (Myers, 1989; Walker et al., 2005a). Mezey and King (1989) reported that male victims of sexual violence were more likely to attempt suicide and question their sexual orientation. It has been suggested that victimized men may be more likely than female victims to blame themselves and report more hostility and anger (Rentoul & Appleboom, 1997). A recent comparison of male and female victims of sexual violence indicated that male victims have similar long-term patterns of self-reported health outcomes (e.g., general health, poor mental health, activity limitation, and low life satisfaction) when compared to female victims (Choudhary

et al., 2008). Although studies have suggested that the emotional impact of sexual assault on men and women may be similar, detailed research employing large samples of men is still needed to facilitate detailed comparisons (Hillman, O'Mara, Taylor-Robinson, & Harris, 1990; Mezey & King, 1989; Walker et al., 2005b).

For both men and women, the perpetrator was usually known to the victim. However, comparatively few existing studies have simultaneously examined the perpetrator and incident characteristics of male sexual assault. Findings from the National Violence Against Women Survey reported that most male victims (approximately 40%) were sexually assaulted by acquaintances, such as friends, teachers, coworkers, or neighbors, and 22.8% of all male victims were assaulted by a stranger (Tjaden & Thoennes, 2006). Basile et al. (2007) reported that for male victims, 32.3% reported acquaintances, 17.7% reported nonintimate family member, 17.6% reported friends, and 15.9% reported intimate partners as the perpetrators of the first forced sex.

Although earlier studies have provided evidence of negative health outcomes among male victims of sexual violence, few have utilized nationally representative samples of male victims to identify associations with individual psychosocial and contextual factors that may be associated with poor health or simultaneously considered differences in the associations between correlates and category of sexual violence. The objectives of this study were to address current gaps in existing literature by comparing differences in adverse health outcomes among male victims of three different categories of sexual violence (attempted intercourse [AI], completed intercourse [CI], and attempted and completed intercourse [ACI]) and to identify perpetrator characteristics (e.g., gender, relationship to victim) using 2 years of data from sexual violence modules of Behavioral Risk Factor Surveillance System (BRFSS).

Method

Data

Data were obtained from the 2005 and 2006 BRFSS survey, an ongoing data collection program designed to collect information on risk factors and health behaviors using a nationally representative sample of U.S. adults by the Centers for Disease Control and Prevention (CDC). Detailed information about the questionnaire can be obtained from the BRFSS Web site (http://www.cdc.gov/brfss/index.htm). Briefly, the questionnaire has three parts, which include a core component that is used by all states, an optional module, and

state-added questions. Optional modules contain questions on specific topics that states elect to supplement information on areas of interest not covered by the core questionnaire. This is a telephone-based survey conducted by state health departments on randomly selected BRFSS participants (18 years of age and older). Data for this study were limited to information from men who responded to both the core questionnaire and optional sexual violence module administered in 20 and 12 U.S. states and territories in year 2005 and 2006, respectively. Data from both years were combined and used for all analyses. The response rate among participating states ranged from 29.6% to 67.6% in 2005 to 31.8% to 58.4% in 2006.

Measures

Three categories of sexual violence victimization among men were defined based on four questions in the BRFSS sexual violence module. These questions asked about attempted or completed unwanted sexual intercourse experienced at any point in the respondent's lifetime or in the 12 months prior to data collection. The first category "AI" defined those respondents who answered *yes* to the question asking "has anyone *attempted* to have sex with you after you said or showed that you did not want to or without your consent, *but sex did not occur?*" The second category "CI" was based on response to a single question asking "has anyone *had sex* with you when you showed that you did not want them to or without your consent" in the respondent's lifetime or in the 12 months prior to data collection. Respondents who answered *yes* to this question were considered to be victims of forced unwanted intercourse. The third category "ACI" included those male respondents who experienced both attempted and completed victimization (i.e., who answered *yes* to the first two questions). The reference group for all analyses was men reporting no victimization.

Health outcomes included as correlates of sexual violence victimization included poor or fair self-reported health status; the number of days of poor mental health; overall life satisfaction; activity limitations due to any physical, mental, or emotional health problems; and lack of social and emotional support. Specific questions about health outcomes included the following:

1. "Would you say that in general your health is ____." Response options included excellent, good, fair, or poor. Self-reported health status was recoded to create a dichotomous measure of health to include good (combining excellent and good) and poor or fair categories.

2. The number of days with poor mental health was calculated based on responses to the question "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?" Due to the skewed distribution of this measure, the number of days with poor mental health was included as a dichotomous measure, including categories for no days and 1 or more days.
3. Life satisfaction was calculated using responses to the question "In general, how satisfied are you with your life?" Response options for this question included very satisfied, satisfied, dissatisfied, and very dissatisfied. Life satisfaction was recoded into a dichotomous measure including satisfied (very satisfied and satisfied) and not satisfied (dissatisfied and very dissatisfied) categories.
4. Activity limitations due to any health problems were identified based on responses to the question asking "Are you limited in any way in any activities because of physical, mental, or emotional problems?" Response options to the question asking about activity limitations included yes and no.
5. Lack of emotional and social support was calculated using the question "How often you get the social and emotional support you need?" Response options for this question included always, usually, rarely, and never. Emotional and social support was included as a dichotomous measure including usually (always and usually) and rarely (rarely and never) categories.

Measures included as controls for each regression model included ages (18-24, 25-34, 35-44, 45-54, 55-64, and 65+), marital status (single, married, and divorced/separated), race/ethnicity (non-Hispanic White, non-Hispanic African American, non-Hispanic Other, and Hispanic), income (<25,000, 25,000-50,000, and >50,000), and education (less than college and college graduate). In 2005 and 2006, the BRFSS sexual violence module included questions about the victim's relationship to the perpetrator of sexual violence and the perpetrator's gender. Respondent reports of relationship characteristics and the perpetrator's gender were used to construct relationship and gender categories for stratified analyses. Questions asking about the gender and relationship with perpetrator were asked to men who experienced victimization in the past 12 months before the survey, reducing the number of respondents available for stratified analyses.

Data Analysis

Initial analyses using bivariate logistic regression models were conducted to test the associations between type of victimization and individual health outcomes. Based on these results, a series of fully adjusted multivariate logistic regression analyses were also conducted to identify the associations between the category of victimization and health outcomes while controlling for age, marital status, race/ethnicity, income, education, and potential confounders. Chi-square test of homogeneity was used to identify significant differences between frequencies. All frequencies and regression models were calculated using SAS (Ver. 9.1) and SUDAAN (Ver. 9.01).

Results

In 2005 and 2006, a total of 59,511 male respondents participated in the BRFSS sexual violence modules. Demographic characteristics for the full sample of BRFSS respondents who participated in the sexual violence module and victimized men are shown in Table 1. A majority of the male participants were White (73.7%), married (69.0%), and had not completed a 4-year college degree (65.4%). Among all male participants, a total of 1,828 (3.56%) respondents reported AI, 367 (0.64%) reported CI against their will, and 555 (0.93%) were victims of ACI. Results of Chi-square test of homogeneity suggested that victimized men were significantly more likely to be younger, White, and single, and they reported a lower income (Table 1).

A comparison of the bivariate associations between sexual violence victimization and adverse health outcomes is shown in Table 2. Overall, the pattern of associations between sexual violence victimization and negative health outcomes was similar among men who experienced AI victimization and those who experienced ACI victimization with the exception of poor health status and low emotional support. When compared to men who reported no victimization, men who reported AI victimization were also more likely to report 1 day or more of poor mental health, poor life satisfaction, activity limitations, and low emotional support. Among men who reported CI victimization at some point in their lifetime, only activity limitation due to physical, mental, or emotional problems was significantly associated with sexual violence victimization when compared to men who reported no victimization. Men who experienced ACI victimization had higher odds of poor health status, poor life satisfaction, activity limitations, and low emotional support.

Table 1. Comparison of Total and Victim Samples

	Total Sample (N = 59,511)		Victimized Sample (n = 2,750)	
	n	Wtd %	*n*	Wtd %
Age groups (years)[a]				
18-24***	2,967	13.32	282	27.98
25-34*	7,124	18.36	452	22.21
35-44	10,207	19.81	553	19.29
45-54**	12,652	19.55	673	15.21
55-64***	11,454	14.27	443	8.47
65+***	12,097	14.69	347	6.84
Race/ethnicity[a]				
White***	25,739	73.74	1,348	63.05
Black**	2,460	7.73	202	12.20
Hispanics	2,519	12.24	178	16.33
Others	2,918	6.29	231	8.42
Marital status[a]				
Single***	8,348	19.51	780	35.96
Married***	37,186	69.04	1,235	46.10
Divorced/separated***	10,853	11.45	725	17.95
Income (US$ per annum)[a]				
≤25,000***	11,341	20.56	775	31.01
25,000-50,000	16,254	29.58	782	32.30
>50,000***	23,886	49.86	965	36.69
Education**				
Less than college	36,337	65.41	1,785	71.09
College graduate	20,164	34.59	965	28.91
Victimization				
AI***			1,828	3.56
CI***			367	0.64
ACI***			555	0.93
No victimization			56,501	94.87

Note: Wtd = weighted; AI = attempted intercourse; CI = completed intercourse; ACI = attempted and completed intercourse. All values do not add up to 59,511 due to missing values.
a. Total sample and victimized samples were compared.
*$p \le .05$. **$p \le .001$. ***$p \le .0001$.

A comparison of prevalence estimates for adverse health outcomes among men in all three categories of sexual violence victimization and non-victimized men is shown in Table 3. The prevalence of all five adverse health outcomes among victimized men was significantly different when

Table 2. Bivariate Model of Association Between Sexual Violence Victimization and Health Outcomes Among Men

		Categories of Victimization		
		AI	CI	ACI
Variables		OR_{adj} (95% Confidence Interval)	OR_{adj} (95% Confidence Interval)	OR_{adj} (95% Confidence Interval)
General health status	Poor/fair	1.30 (0.94-1.80)	1.12 (0.54-2.33)	2.58* (1.53-4.34)
	Good	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Number of days with poor mental health	≥1 day	2.18** (1.53-3.11)	1.29 (0.65-2.55)	1.65 (0.95-2.86)
	None	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Poor life satisfaction	Yes	2.14** (1.40-3.27)	1.89 (0.93-3.85)	3.37** (2.01-5.64)
	No	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Activity limitations due to physical, mental, or emotional problems	Yes	1.95** (1.50-2.53)	1.86** (1.12-3.08)	1.68** (1.08-2.61)
	No	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Emotional and social support received when needed	Always	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
	Rarely	1.62* (1.20-2.20)	1.57 (0.82-3.00)	1.49* (1.01-2.21)

Note: OR_{adj} = adjusted odds ratio, that is, adjusted for gender, age, race/ethnicity, marital status, education, and income level; AI = attempted intercourse; CI = completed intercourse; ACI = attempted and completed intercourse.

*$p \leq .05$. **$p \leq .001$.

compared to nonvictimized men (reference group). Specifically, a significantly higher percentage of men who experienced ACI victimization reported poor health status, $\chi^2(1, N = 581{,}151) = 11.08$, $p < .05$, when compared to the reference category (nonvictimized men). A significantly higher percentage of male victims of AI, $\chi^2(1, N = 49{,}128) = 32.75$, $p < .05$; CI, $\chi^2(1, N = 49{,}128) = 12.30$, $p < .05$; and ACI, $\chi^2(1, N = 49{,}128) = 18.86$, $p < .05$, reported poor mental health (a week or more with poor mental health in the last 30 days) when compared to men who reported no victimization. The percentage of respondents reporting poor life satisfaction was significantly greater among male victims of all three categories of sexual assault compared to nonvictimized men: AI victimization, $\chi^2(1, N = 57{,}988) = 20.87$, $p < .05$; CI victimization, $\chi^2(1, N = 57{,}988) = 11.62$, $p < .05$; and ACI

Table 3. Prevalence of Health Outcomes Related to Sexual Violence Victimization Among Men

		Categories of Victimization			
		AI	CI	ACI	No Victimization[a]
Variables		Wtd % (95% Confidence Interval)	Wtd % (95% Confidence Interval)	Wtd % (95% Confidence Interval)	Wtd % (95% Confidence Interval)
General health status	Poor/fair	15.63 (12.64-19.18)	16.40 (11.38-23.07)	27.74** (20.59-36.25)	13.76 (13.25-14.30)
Number of days with poor mental health	≥1 day	32.90*** (27.43-38.88)	27.86** (19.33-38.38)	29.51*** (22.34-37.87)	13.59 (12.97-14.23)
Poor life satisfaction	Yes	11.92*** (9.09-15.49)	12.93** (8.38-19.43)	16.83*** (12.00-23.10)	4.28 (3.96-4.61)
Activity limitations due to physical, mental, or emotional problems	Yes	23.36** (19.95-27.16)	27.51* (19.78-36.86)	25.92* (20.25-32.54)	17.16 (16.61-17.73)
Emotional and social support received when needed	Rarely	30.38*** (26.09-35.05)	33.31* (22.77-45.83)	34.63** (27.15-42.95)	19.38 (18.74-20.03)

Note: Wtd = weighted; AI = attempted intercourse; CI = completed intercourse; ACI = attempted and completed intercourse.
a. Reference group.
*$p \leq .05$. **$p \leq .001$. ***$p \leq .0001$.

victimization, $\chi^2(1, N = 57{,}988) = 19.95$, $p < .05$. Similarly, when compared to the reference category of nonvictimized men, the prevalence of activity limitations was higher among all three categories of sexual violence victimization: AI victimization, $\chi^2(1, N = 58{,}090) = 11.60$, $p < .05$; CI victimization, $\chi^2(1, N = 56{,}637) = 7.37$, $p < .05$; and ACI victimization, $\chi^2(1, N = 56{,}824) = 9.10$, $p < .05$. Finally, a significantly greater percentage of men who experienced any type of sexual violence victimization reported that they rarely receive emotional and social support when compared to nonvictimized men: AI victimization, $\chi^2(1, N = 57{,}078) = 21.60$, $p < .05$; CI victimization, $\chi^2(1, N = 55{,}641) = 5.16$, $p < .05$; and ACI victimization, $\chi^2(1, N = 55{,}831) = 14.20$, $p < .05$.

The results of the full multivariate model are reported in Table 4. As expected, the magnitude of the associations between sexual violence victimization and poor health outcomes was lower after adjusting for demographic characteristics and other health outcomes (number of days with poor mental health, poor life satisfaction, activity limitation, and emotional and social support). Men who reported AI victimization only were significantly more likely to report 1 day or more of poor mental health days in the last 30 days and activity limitation due to physical, mental, or emotional problems as compared to the reference group (nonvictimized men). Men who reported being a victim of CI had higher odds of reporting activity limitations when compared to men reporting no victimization. Finally, men who reported being the victim of ACI were significantly more likely to report poor life satisfaction when compared to nonvictimized men.

Results of comparisons of the victim's relationship with the perpetrator stratified by the perpetrator's gender for each category of victimization category are shown in Table 5. When the gender of the perpetrator was considered, a significantly greater percentage of victims of AI reported a female perpetrator who was either a current, $\chi^2(1, N = 633) = 11.66$, $p < .05$, or former intimate partner, $\chi^2(1, N = 633) = 6.43$, $p < .05$. In contrast, when the perpetrator was a man, the perpetrator was more likely to be a parent/stepparent, $\chi^2(1, N = 633) = 4.54$, $p < .05$, or stranger, $\chi^2(1, N = 633) = 17.26$, $p < .05$. Similarly, victims of CI were significantly more likely to report a female perpetrator as a former intimate partner ($\chi^2 = 4.28$, $p = .039$) and male perpetrators as either a parent/stepparent, $\chi^2(1, N = 127) = 5.07$, $p < .05$, or stranger, $\chi^2(1, N = 127) = 4.92$, $p < .05$. Victims of ACI reported a significantly greater percentage of former female intimate partners as perpetrators, $\chi^2(1, N = 187) = 6.36$, $p < .05$, and parents/stepparents when the perpetrator was a man, $\chi^2(1, N = 187) = 5.01$, $p < .05$.

Table 4. Multivariate Model of Association Between Sexual Violence Victimization and Health Outcomes Among Men

		Categories of Victimization		
		AI	CI	ACI
Variables		OR_{adj} (95% Confidence Interval)	OR_{adj} (95% Confidence Interval)	OR_{adj} (95% Confidence Interval)
General health status	Poor/fair	0.83 (0.55-1.26)	0.96 (0.48-1.94)	1.34 (0.81-2.25)
	Good	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Number of days with poor mental health*	≥1 day	1.72* (1.12-2.65)	0.86 (0.47-1.57)	1.21 (0.81-1.82)
	none	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Poor life satisfaction**	Yes	1.34 (0.78-2.29)	1.34 (0.68-2.65)	3.22* (1.89-5.48)
	No	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Activity limitations due to physical, mental, or emotional problems*	Yes	1.50* (1.08-2.08)	2.16* (1.29-3.61)	1.45 (0.84-2.50)
	No	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Emotional and social support received when needed	Always	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
	Rarely	1.42 (0.97-2.10)	1.70 (0.79-3.64)	1.20 (0.78-1.83)

Note: OR_{adj} = adjusted odds ratio, that is, adjusted for gender, age, race/ethnicity, marital status, education, and income level, and health outcome; AI = attempted intercourse; CI = completed intercourse; ACI = attempted and completed intercourse.
*$p \leq .05$. **$p \leq .001$.

Discussion

The results of this study contribute significantly toward increasing current knowledge and understanding of male sexual assault using a population-based sample of U.S. adults. The prevalence of sexual violence victimization reported by men participating in the 2005 and 2006 BRFSS surveys (5.13%) are comparable to the estimates reported in previous studies using nationally representative samples (Basile et al., 2007; Tjaden & Thoennes, 2006). In addition, the results of this study identify several key characteristics and consequences of male sexual violence victimization.

When compared to the total sample of men participating in the sexual violence modules, men who reported being victims of sexual violence were

Table 5. Relationship With Perpetrator and Gender of the Perpetrator (Past 12 Month Victimization Only)

	Gender of Perpetrator by Category of Victimization					
	AI		CI		ACI	
	Wtd % (n = 633)		Wtd % (n = 127)		Wtd % (n = 187)	
Relationship With Perpetrator	Male Perpetrator	Female Perpetrator	Male Perpetrator	Female Perpetrator	Male Perpetrator	Female Perpetrator
Current intimate partner[a,b]	0.87	11.99	1.49	13.26	6.93	21.55
Former intimate partner[a,c]	3.05	18.06	0.00	23.98	0.00	8.96
Friend/acquaintance/coworker	51.46	59.82	40.49	55.32	28.61	53.47
Parent/stepparent[c]	5.27	0.40	23.15	1.60	44.98	5.29
Stranger/other[d]	39.35	9.74	34.87	5.84	19.48	10.72

Note: Wtd = weighted; AI = attempted intercourse; CI = completed intercourse; ACI = attempted and completed intercourse. Response included only those
who experienced sexual violence in the past 12 months

a. Responses include spouse, girlfriend, or boyfriend.

b. Differences between male and female perpetrators are statistically significant in "AI" victimization category: $p < .001$.

c. Differences between male and female perpetrators are statistically significant in all three categories of victimization: $p < .05$.

d. Differences between male and female perpetrators are statistically significant in "AI" and "CI" victimization categories: $p < .05$.

significantly more likely to be under the age of 35, single, lower income (i.e., family income <50,000 per annum), and with some high school education. Overall, the characteristics of male victims of sexual violence are similar to the demographic characteristics associated with victimization among women (Choudhary et al., 2008; Stermac, Del Bove, & Addison, 2004; Walker et al., 2005a, 2005b). Therefore, sexual violence prevention specialists and those working in support services for victims of sexual violence should consider the possibility that male and female victims may have similar demographic characteristics.

When victims of AI, CI, and ACI sexual violence were compared to men reporting no victimization, a greater percentage of men who reported any sexual violence victimization (AI or CI) also reported poor mental health, poor life satisfaction, activity limitations, and infrequent emotional or social support. Despite similarities in the prevalence of poor mental and physical health across categories of sexual violence victimization, the results of bivariate and multivariate regression models identified important differences in the associations between the category of sexual violence victimization and poor health outcomes. In the bivariate models, four of the five included health measures were significantly associated with both AI and ACI sexual violence victimization. Among participants reporting completed sexual violence victimization alone, only activity limitations were significantly associated with victimization. The reasons for these differences are unclear but may be associated with the availability of use of support services among male victims of attempted sexual intercourse or the trauma associated with repeat victimization. In previous studies where comparisons of health outcomes and risk behaviors were done among adolescent victims of sexual assault, adverse mental health outcomes (depression, suicide ideation, etc.) were observed among men (Buzi et al., 2003; Darves-Bornoz, Choquet, Ledoux, Gasquet, & Manfredi, 1998). Our study did not include several important correlates of mental health among traumatized populations as BRFSS does not currently collect data on the number of unique victimizations or the use of medical, psychological, or police services associated with sexual violence. However, health indicators among male victims included in this study suggest that service providers such as emergency responders consider the immediate and long-term consequences of sexual violence victimization among men. Furthermore, to better understand the impact of sexual violence across populations, future studies should include considerations of access to and use of support services and a detailed consideration of multiple incidents of sexual violence victimization.

Current activity limitation was the only measure significantly associated with all three categories of sexual violence victimization in the bivariate

models and with more than one category of victimization (AI and CI) in the fully adjusted multivariate models. This finding was consistent with results from a previous study comparing gender differences in the associations between sexual violence victimization and health outcomes (Choudhary et al., 2008; Romito & Grassi, 2007; Santiago, McCall-Perez, Gorcey, & Beigel, 1985). The results of this study also support findings from previous studies concluding that male victims of sexual violence experience both mental and physical health problems (Rentoul & Appleboom, 1997; Vearnals & Campbell, 2001; Walker et al., 2005a).

A comparison of relationship characteristics among perpetrators and victims of all three categories of sexual violence suggests that, with one exception, men are most likely to be victimized by a friend, acquaintance, or coworker. Importantly, this relationship characteristic was consistent among all three categories of sexual violence victimization. In contrast to this pattern, male victims of ACI were significantly more likely to be sexually victimized by a male parent, guardian, or stranger (Basile et al., 2007; Tewksbury, 2007). Information available in the BRFSS data does not allow for a consideration of biological parents versus stepparents or other legal guardians. Thus, the nature of the relationship in these cases is unknown. However, these findings are consistent with the results of previous studies of childhood sexual abuse of boys (Myers, 1989; Whiffen & MacIntosh, 2005). The prevalence of male victims of sexual violence reporting a female intimate partner as a perpetrator suggests that female-perpetrated sexual violence should be considered in greater detail. However, the limited number of questions about the nature of the incident that could be used to better understands the context and circumstances surrounding female-perpetrated sexual violence against men seriously limit the utility of the available data. Additional research investigating perceptions of male sexual violence victimization, the context of female-perpetrated sexual violence, and the circumstances of these events is needed to clarify the findings of the results of this study and to inform future research and prevention efforts.

This study is subject to several important limitations. First, differences in question wording and order in the 2005 and 2006 BRFSS surveys may affect interpretation of the questions and the estimates derived from these data. Among questions asking about lifetime victimization, information related to the age of the victim at the time of assault was not available. Therefore, these results were not able to differentiate between childhood and adulthood sexual assault. As noted above, sexual violence victimization was identified using a series of questions asking the respondent about experiences where they were forced to have sexual intercourse after they said no or did not want to. Alternate definitions of sexual violence victimization differentiating between physical intimidation, drug

or alcohol involvement, or social pressures may yield different results. Finally, these analyses are based on cross-sectional, self-reported data testing associations between victimization and health-related outcomes and cannot determine causality and have not been corroborated using external data sources.

Despite these limitations, this study contributes to the current knowledge of characteristics of male sexual violence victims and may have important implications for prevention and identification of male victims of sexual violence. To our knowledge, this is the first study where health-related outcomes based on type of victimization among male victims were compared. Similar to results from research including female victims of sexual assault, our findings indicate strong association between negative health-related outcomes and sexual violence victimization among male victims. Clinicians and others working with victims of sexual violence should consider similarities in demographic characteristics and in the associations between health outcomes and category of victimization among male and female victims. In this study, we observed differences in the magnitude of the associations between health-related outcomes and type of sexual violence victimization among male victims. Our results indicate significant differences in health-related outcomes based on the type of victimization among male victims. It is recommended that future studies include broader measures of health and health-related outcomes and detailed information on the context and circumstances surrounding both attempted and completed sexual violence victimization. Finally, it is important to increase awareness of male victimization of sexual assault to aid in the development of targeted prevention strategies and to assist in the continued refinement of considerations of gender in violence-related research.

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Bios

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