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Exposure to Interpersonal Violence and Its Associations With Psychiatric Morbidity in a U.S. National Sample: A Gender Comparison

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Objectives: We examine gender differences in population rates of various types of interpersonal violence in a U.S. national sample and investigate gender as a moderator of the associations between interpersonal violence and lifetime mental disorders and suicide attempts. ***Methods:*** Data were drawn from the National Comorbidity Survey-Replication study; 5,692 women and men completed interviews assessing lifetime exposure to nine types of interpersonal violence, *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (*DSM–IV*) mental health diagnoses, and suicide

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attempts. ***Results:*** Approximately 46% of women and 42% of men reported one or more types of interpersonal violence. Women were more likely to experience kidnapping, physical assault by an intimate partner, rape, sexual assault, and stalking, whereas men were more likely to experience mugging or physical assault by someone other than parents or an intimate partner. Interpersonal violence was associated with risk for many mental disorders and attempted suicide. Although women were at higher risk for several forms of interpersonal violence, the impact of interpersonal violence on mental health outcomes did not vary by gender. ***Conclusions:*** It is clearly important to identify and provide mental health treatment to women after interpersonal violence exposure. Findings also underscore the need for prevention and intervention efforts for women ***and*** men, including routine screening for interpersonal violence by health care providers and appropriate treatment to address mental health conditions.

Keywords: crime victims, child abuse, parental violence, intimate partner violence, rape, prevalence, moderation, gender

Interpersonal violence is associated with numerous adverse health outcomes, including posttraumatic stress disorder (PTSD), other anxiety disorders, depression, substance abuse disorders, and other psychiatric comorbidities (Brady, Killeen, Brewerton, & Lucerini, 2000; Breslau, Davis, Andreski, & Peterson, 1991; Jordan, Campbell, & Follingstad, 2010; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Resnick, Acierno, & Kilpatrick, 1997; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993; Schnurr & Jankowski, 1999). For example, a recent study documented substantial associations between four types of interpersonal violence exposure—physical assault by an intimate partner, rape, other sexual assault, and stalking—and psychopathology among a nationally representative sample of Australian women. Women exposed to one or more of these forms of interpersonal violence were 2.6 to 11 times more likely than nonexposed women to meet criteria for a mood, anxiety, or substance use disorder in their lifetime. The associations between other types of stressful life events and psychopathology were considerably smaller. Unfortunately, in studies to date, the category of interpersonal violence has often been construed narrowly, including only experiences such as physical assault by an intimate partner, rape, other sexual assault, and stalking. Thus, less is known about the mental health impact of a broad array of different types of interpersonal violence. Also, although the link between these frequently studied forms of interpersonal violence and psychiatric morbidity is well-documented among women (Basile, Arias, Desai, & Thompson, 2004; Campbell, Greeson, Bybee, & Raja, 2008; Rees et al., 2011; Smith et al., 2011), fewer studies have focused on their prevalence and mental health impact among men. This study examines gender differences in population rates of a comprehensive set of interpersonal violence exposures in a national sample of U.S. women and men and investigates gender as a moderator of the associations between interpersonal violence exposure and lifetime mental disorders and suicide attempts using a comprehensive array of diagnostic mental health outcomes.

Several studies suggest that the rates of exposure to interpersonal violence vary markedly by gender. For example, women are more likely than men to be the victims of rape, sexual assault, and stalking, and men are more likely than women to be physically assaulted and threatened with a weapon (Black et al., 2011; Kessler et al., 1995; Tolin & Foa, 2006). Because of these differences in prevalence of exposure, research on health consequences associated with certain types of interpersonal violence—for example, rape, sexual assault, and intimate partner violence—has understandably tended to focus on the effects of violence perpetrated against women in isolation from the effects of violence perpetrated against men (Campbell et al., 2008). However, although these exposures are less common among men than women, sexual assault and intimate partner violence among men also represents a significant social problem in the United States (Black et al., 2011; Carbone-López, Kruttschnitt, & Macmillan, 2006; Coker et al., 2002; Saunders, 2002; Tolin & Foa, 2006; Whitaker, Haileyesus, Swahn, & Saltzman, 2007). For instance, the

National Intimate Partner and Sexual Violence Survey found that at least one in five U.S. men have experienced sexual violence victimization during their lifetime, and one in seven have experienced severe physical violence by an intimate partner (Black et al., 2011), and such experiences are associated with elevated mental health symptoms (Black et al., 2011; Coker et al., 2002). Although women are often overrepresented in the literature examining the impact of rape, sexual assault, and stalking, the aforementioned studies suggest that men are legitimate victims of these forms of interpersonal violence as well. This highlights the need for research to understand the scope of a broad range of interpersonal violence experiences among men, including any ways in which health effects of interpersonal violence may be similar or different for women and men.

The few studies that have examined the impact of interpersonal violence by gender have resulted in inconsistent findings (Dube et al., 2005; Kessler et al., 1995; Kimerling et al., 2010). Kessler and colleagues (Kessler et al., 1995) found that although women were nine times more likely to experience rape than men, the conditional probability of PTSD associated with rape was similar for women and men. Similarly, a study of HMO members found that although men reported slightly lower levels of childhood sexual abuse than women (16% vs. 25%, respectively), the association between child sexual abuse and mental health problems was consistent across genders (Dube et al., 2005). Conversely, other findings suggest that there may be gender differences in health outcomes as a function of the specific type of interpersonal violence. For example, Kessler et al. (1995) found that women were about four times more likely to report sexual molestation in childhood than men, and the conditional probability of PTSD associated with molestation was considerably higher for women than for men. Additionally, several studies with military populations suggest that exposure to sexual violence may have more serious mental health consequences for men than for women (Kang, Dalager, Mahan, & Ishii, 2005; Shipherd, Pineles, Gradus, & Resick, 2009; Street, Gradus, Stafford, & Kelly, 2007; Vogt, Pless, King, & King, 2005). Thus, it remains unclear whether the mental health effects of specific types of interpersonal violence differ for women and men.

There are theoretical reasons to expect that the associations between interpersonal violence and mental health outcomes vary for women and men. Gender differences exist in terms of risk for a variety of psychiatric conditions, including mood, anxiety, substance use disorders, eating disorders, and attempted suicide (APA, 2000; Kessler, Chiu, Demler, Merikangas, & Walters, 2005; Moscicki, 1994). Stressful life events, such as interpersonal violence exposure, are known risk factors for psychiatric problems (Bradley et al., 2008; Jordan et al., 2010; Kessler et al., 1995). Moreover, gender differences in the prevalence and types of interpersonal violence exposure, such as women's higher risk for rape and intimate partner violence, have been theorized to account, in part, for women's greater risk for some mental health conditions (Herman, 1992; Kimerling, Ouimette, & Weitlauf, 2007). However, despite such research and theory, gender has yet to be explicitly examined as a moderator of the association between interpersonal violence and mental health outcomes in a large population-based sample.

Understanding gender differences in the prevalence of different types of interpersonal violence exposure among women and men, and determining whether gender moderates the associations between interpersonal violence and mental health outcomes, is critical for developing targeted programs aimed at preventing health problems among all interpersonal violence victims. We addressed this gap in the literature in the current report using data from a U.S. national probability sample. First, we examined gender differences in the prevalence of a wide range of interpersonal violence exposures (i.e., physical assault by an intimate partner, rape, other sexual assault, stalking, physical assault, mugging, childhood physical abuse, kidnapping, and witnessing interparental violence). Second, we investigated the associations between the nine forms of interpersonal violence and lifetime mental health diagnoses and a history of attempted suicide after rigorous adjustment for potential cofounding variables. Third, we tested gender as a moderator of the association between interpersonal violence with lifetime mental health diagnoses and a history of attempted suicide in women and men to determine whether the associations between in-

terpersonal violence and morbidity vary by gender.

Method

Sample

The NCS-R was a face-to-face household survey of a nationally representative, multistage, clustered area probability sample of the U.S. population. Participants were English-speaking and aged 18 and older. Interviews were conducted between February 2001 and April 2003 by the trained professional interview staff of the Institute for Social Research at the University of Michigan (Kessler & Merikangas, 2004). The response rate was 70.9%. Recruitment began with a letter and study fact brochure followed by in-person interviewer visit to explain study aims and procedures before obtaining informed consent. Respondents were paid $50 for participation. All procedures for the NCS-R study were approved by the human subjects committees of Harvard Medical School and the University of Michigan. The Institutional Review Board at the VA Boston Health care System approved the current analyses.

The interview was administered in two parts. Part 1 included a diagnostic assessment of mental disorders (n = 9,282). Part 2 assessed risk factors, correlates, and additional disorders and was administered to all Part 1 respondents who met lifetime criteria for any disorder, plus a probability subsample of other respondents (n = 5,692). Sample weights were applied to the analyses to obtain population-based estimates. The Part 1 sample was weighted to adjust for differential probabilities of selection within households, and the Part 2 sample was weighted to adjust for the lower selection probabilities for Part 2 respondents without a mental disorder. These weights adjusted the sample to match the 2000 census population on a cross-classification of numerous geographic and sociodemographic variables. This report focuses on the weighted Part 2 sample. Further details regarding the NCS-R sampling design, weighting procedures, and sociodemographic distribution are reported elsewhere (Kessler et al., 2004).

Measures

Diagnostic assessment. NCS-R lifetime diagnoses were assessed with Version 3.0 of the World Health Organization Composite International Diagnostic Interview (CIDI; (Kessler & Ustun, 2004), a fully structured lay-administered interview for mental disorders according to *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM–IV*; (APA, 2000) criteria. Analyses focused on lifetime histories of the following *DSM–IV* disorders: (1) PTSD, (2) other anxiety disorders (panic disorder, agoraphobia, social phobia, specific phobia, and generalized anxiety disorder), (3) mood disorders (major depressive disorder, dysthymic disorder, bipolar I and II disorders), (4) substance use disorders (SUDs; alcohol abuse, alcohol dependence, drug abuse, and drug dependence), and (5) eating disorders (bulimia nervosa and binge eating disorder). Mental health diagnoses and history of attempted suicide were coded as present/absent for models in the current investigation. As reported in greater detail elsewhere (Haro et al., 2006; Kessler et al., 2004), blinded clinical reappraisal interviews with a probability subsample of NCS-R respondents found adequate concordance between *DSM–IV* diagnoses based on the CIDI and those based on clinical interviews, with concordance values ranging between 0.62 and 0.93.

Exposure to stressful life events. A total of 29 stressful life events were assessed in the NCS-R and are described elsewhere (ICPSR, 2011). There were nine types of interpersonal violence exposures, which were measured using questions such as "were you ever badly beaten up by a spouse or romantic partner?" (physical assault by an intimate partner), or "Has someone ever stalked you—that is, followed you or kept track of your activities in a way that made you feel you were in serious danger?" (stalking). A two-pronged question about sexual assault assessed lifetime rape and nonpenetrative sexual assault. "We define this as someone either having sexual intercourse with you or penetrating your body with a finger or object when you did not want them to, either by threatening you or using force, or when you were so young that you didn't know what was happening. Did this ever happen to you?" (rape) and "Other than rape, were you ever sexually assaulted, where someone touched you inappropriately, or when you did not want them to?" (other forms of sexual assault). Other types of interpersonal violence were assessed in a similar manner and included being beaten by parents or caregiver,

being beaten by someone other than parents or an intimate partner, being kidnapped, being mugged, and witnessing interparental violence. Other stressful life events included events that did not include clear interpersonal violence by a perpetrator (i.e., combat exposure, being a refugee, natural disaster). These other stressful life events were aggregated into a dichotomous variable representing other stressful life events, which was used as a covariate in analyses.

Covariates. Demographic variables consisted of years of sex, education (0–11 years, 12 years, 13–15 years, greater than or equal to 16 years), race/ethnicity (Asian, Mexican, Afro-Caribbean, other Hispanic, African American, non-Latino White, other), marital status (married, separated, divorced, widowed, never married), age group (18–29, 30–49, 50–64, ≥ 65), and social support. Social support was assessed with six questions asking participants whether they could rely on friends, relatives, and romantic partners for help with serious problems or to discuss worries. These responses were summed and averaged to create a social support variable. There were large amounts of missing data for participants who did not have romantic partners; in these cases, the four relative and friend items were summed and averaged. Cronbach's alpha for the social support scale was .67 in this study.

Statistical Analyses

All analyses were conducted in SAS 9.2, using the aforementioned sample weights to account for the complex survey design and adjust for selection probabilities and participant nonresponse. Wald chi-square tests were conducted to compare the proportions of individuals with and without interpersonal violence across demographic variables, as well as compare the frequency of interpersonal violence exposure and mental health outcomes by gender. Logistic regression was used to examine the associations of each particular type of interpersonal with mental health outcomes. The delete-1 jackknife method was used to compute variances and 95% confidence intervals (CIs). Age, marital status, race, education level, social support, and a variable representing whether participants had ever experienced other stressful life events were included as covariates in all regression models.

Product terms of each interpersonal violence type × gender were created to test whether gender moderated associations between interpersonal violence and mental health outcomes. Demographic variables were entered first, followed by main effects for gender and interpersonal violence variables, and then the product terms were entered into the logistic regression models. Because of the large number of statistical comparisons, only p values $< .01$ were considered significant.

Results

Prevalence of Different Types of Interpersonal Violence Exposure and Mental Health Diagnoses by Gender

For descriptive purposes, chi-square tests were used to compare women and men with and without histories of interpersonal violence (i.e., endorsing ≥1 type of interpersonal violence) across demographic variables (see Table 1). A total of 46.2% of women and 42.1% of men reported a history of interpersonal violence. As shown in Table 2, chi-square tests were used to compare women and men on different types of interpersonal violence exposure (see also (Mitchell, Mazzeo, Schlesinger, Brewerton, & Smith, 2012) as well as lifetime mental health diagnoses (collapsed across categories, as described above) and attempted suicide (see also Kessler et al., 2005). Significant differences were found for history of kidnapping (1.9% of women, 0.8% of men), physical assault by an intimate partner (13.3% of women, 1.5% of men), physical assault by someone other than parents or intimate partner (2.5% of women, 12.4% of men), mugging (12.0% of women, 25.9% of men), rape (14.7% of women, 2.3% of men), other sexual assault (18.7% of women, 4.9% of men), and stalking (13.4% of women, 5.1% of men). No differences were found for childhood physical abuse or witnessing interparental violence. Rates of any lifetime anxiety disorder (28.7% of women, 20.9% of men), any lifetime mood disorder (22.7% of women, 15.0% of men), any lifetime SUD (8.8% of women, 21.3% of men), lifetime PTSD (9.7% of women, 3.6% of men), any lifetime eating disorder (2.3% of women, 1.1% of men), and history of attempted suicide (6.3% of women,

Table 1
Demographic Characteristics and History of Interpersonal Violence Exposure (n = *5,692*)

Characteristics	Men reporting interpersonal violence					Women reporting interpersonal violence				
	Weighted %	No (%)	Yes (%)	χ^2	*p* value	Weighted %	No (%)	Yes (%)	χ^2	*p* value
Education				12.92	0.005				0.28	0.964
0–11 years	17.96	244 (15.77)	236 (21.00)			15.74	254 (15.64)	220 (15.76)		
12 years	31.37	505 (32.64)	334 (29.66)			33.53	541 (33.31)	471 (33.74)		
13–15 years	26.58	387 (25.02)	323 (28.69)			28.33	458 (28.20)	400 (28.65)		
>16 years	24.09	411 (26.47)	233 (20.69)			22.40	371 (22.84)	305 (21.85)		
Race				8.00	0.239				10.94	0.091
Asian	1.76	26 (1.68)	21 (1.87)			1.59	26 (1.60)	22 (1.58)		
Mexican	8.37	125 (8.08)	99 (8.80)			7.10	95 (5.85)	119 (8.52)		
Afro-Caribbean	3.36	43 (2,78)	47 (4.18)			3.40	56 (3.45)	46 (3.30)		
Other Hispanic	0.50	9 (.58)	5 (.44)			0.81	15 (.92)	10 (.72)		
African American	10.63	145 (9.37)	139 (12.36)			12.67	191 (11.77)	191 (13.68)		
Non-Latino White	73.64	1177 (76.08)	790 (70.22)			71.91	1212 (74.68)	960 (68.77)		
Other	1.74	22 (1.42)	24 (2.13)			2.52	28 (1.73)	48 (3.44)		
Marital status				7.04	0.134				70.33	< 0.001
Married	54.38	869 (56.21)	579 (51.60)			46.24	835 (51.42)	561 (40.24)		
Separated	2.81	37 (2.39)	38 (3.39)			4.37	52 (3.20)	79 (5.67)		
Divorced	11.44	154 (9.96)	151 (13.46)			12.70	137 (8.44)	248 (17.79)		
Widowed	2.34	41 (2.65)	22 (1.96)			12.82	254 (15.64)	133 (9.54)		
Never married	29.02	445 (28.78)	332 (29.59)			23.87	346 (21.31)	373 (26.76)		
Age group				34.33	< 0.001				33.83	< 0.001
18–29	24.68	372 (24.05)	286 (25.42)			22.53	328 (20.21)	351 (25.16)		
30–49	39.52	559 (36.13)	500 (44.44)			38.27	569 (35.06)	587 (42.08)		
50–64	20.72	311 (19.76)	242 (21.51			21.01	343 (21.13)	291 (20.86)		
≥65	15.08	305 (19.72)	97 (8.62)			18.19	383 (23.60)	166 (11.90)		
Other stressful life events	80.12	1121 (52.37)	1020 (47.63)	62.43	< 0.0001	71.79	1003 (46.27)	1165 (53.73)	96.88	< 0.001

Note. All frequencies and %s are weighted. Interpersonal violence = physical assault by an intimate partner, rape, other sexual assault, stalking, physical assault, mugging, childhood physical abuse, kidnapping, and witnessing inter-parental violence; Other stressful life events = see *http://www.icpsr.umich.edu/CPES/diagnostics/DSM-IV_Posttraumatic_Stress_Disorder.pdf* for a complete list; χ^2 = chi-square; df = degrees of freedom.

Table 2
Types of Interpersonal Violence Exposures and Mental Health Outcomes by Gender (n = *5,692*)

	% Females (*n*)	% Males (*n*)	χ^2 (df = 1)	*p* value
Interpersonal violence type				
Kidnapped	1.90 (84)	0.84 (28)	10.87	< .001
Childhood physical abuse	6.86 (306)	6.29 (205)	0.56	.454
Physical assault by intimate partner	13.32 (540)	1.54 (44)	177.33	< .001
Physical assault by someone other than parents or intimate partner	2.45 (119)	12.40 (374)	141.61	< .001
Mugged	12.02 (483)	25.88 (734)	109.61	< .001
Raped	14.69 (672)	2.27 (72)	231.87	< .001
Sexual assault other than rape	18.70 (807)	4.92 (161)	216.79	< .001
Stalked	13.45 (574)	5.13 (152)	93.32	< .001
Witnessed inter-parental violence	15.65 (621)	12.91 (384)	4.98	.026
Mental health outcomes				
Any lifetime anxiety disorder	28.66 (1467)	20.88 (799)	38.38	< .001
Any lifetime mood disorder	22.65 (1187)	14.98 (594)	52.01	< .001
Any lifetime SUD	8.77 (429)	21.28 (715)	148.64	< .001
Lifetime PTSD	9.71 (466)	3.59 (134)	77.24	< .001
Any lifetime eating disorder	2.27 (112)	1.07 (34)	12.43	< .001
History of suicide attempt	6.28 (325)	3.59 (143)	11.54	< .001

Note. Anxiety disorders = panic disorder, agoraphobia with and without a history of panic disorder, social phobia, specific phobia, and generalized anxiety disorder; mood disorders = major depressive disorder, dysthymic disorder, bipolar I and II disorders; SUDs = substance use disorders (alcohol abuse, alcohol dependence, drug abuse, and drug dependence); PTSD = posttraumatic stress disorder; eating disorders = bulimia nervosa and binge eating disorder; suicide attempt = history of at least one suicide attempt.

3.6% of men) also differed significantly by gender (see also Kessler et al., 2005).

Exposure to Interpersonal Violence and Lifetime Mental Health Diagnoses and Attempted Suicide

Covariates and main effects for each of the nine interpersonal violence variables were entered into binary logistic regression models as predictor variables with lifetime *DSM–IV* diagnoses and attempted suicide as the outcome variables (see Table 3).

A history of rape was associated with anxiety disorders (OR = 1.47), mood disorders (OR = 1.48), SUDs (OR = 1.96), PTSD (OR = 2.38), and history of suicide attempts (OR = 1.99). A history of physical assault by an intimate partner contributed to SUDs (OR = 2.31), PTSD (OR = 2.29), and history of suicide attempts (OR = 2.41). Sexual assault other than rape was associated with anxiety disorders (OR = 1.54), mood disorders (OR = 2.06), and PTSD (OR = 2.09). Stalking was related to anxiety disorders (OR = 1.44), mood disorders (OR = 1.53), and eating disorders (OR = 2.18). Witnessing inter-parental violence contributed to anxiety disorders (OR = 1.50), mood disorders (OR = 1.47), SUDs (OR = 1.64), and PTSD (OR = 1.85). Mugging was associated with anxiety disorders (OR = 1.38), SUDs (OR = 1.72), and PTSD (OR = 1.85). Childhood physical abuse was associated only with SUDs (OR = 1.52). Physical assault by someone other than parents or partner contributed only to SUDs (OR = 2.45). Kidnapping was not associated with mental health outcomes.

Gender as a Moderator

Moderation analyses were conducted to examine whether the associations between interpersonal violence exposures and mental health outcomes differed significantly for women and men. For these models, we included product terms and main effects for only the interpersonal violence variables that were significantly associated with mental health outcomes as described above. Gender did not significantly moderate the impact of any of the different forms of interpersonal violence on anxiety disorders, mood disorders, SUDs, PTSD, eating

Table 3
Associations Between Interpersonal Violence Exposures With Lifetime Mental Health Disorders and Attempted Suicide for Women and Men (n = 5962)

	Anxiety disorders OR (CI)	Mood disorders OR (CI)	SUDs OR (CI)	PTSD OR (CI)	Eating disorders OR (CI)	Suicide attempt OR (CI)
Covariates						
Sex (reference group = males)	OR = 1.46* (1.24, 1.72)	OR = 1.49* (1.26, 1.76)	OR = .29* (0.23, 0.36)	OR = 2.17* (1.60, 2.94)	OR = 1.94 (1.08, 3.47)	OR = 1.21 (0.82, 1.79)
Age	OR = .99* (0.98, 0.99)	OR = .99* (0.99, 1.00)	OR = .99* (0.98, 0.99)	OR = .99* (0.99, 1.00)	OR = .99* (0.97, 1.00)	OR = .98* (0.97, 0.99)
Marital status	OR = .99 (0.95, 1.04)	OR = 1.02 (0.98, 1.07)	OR = 1.05 (1.00, 1.11)	OR = 1.02 (0.94, 1.11)	OR = .92 (0.81, 1.05)	OR = 1.02 (0.93, 1.12)
Race	OR = 1.12* (1.05, 1.19)	OR = 1.12* (1.05, 1.19)	OR = 1.07 (1.00, 1.15)	OR = 1.15* (1.04, 1.27)	OR = 1.15 (0.94, 1.40)	OR = .96 (0.87, 1.06)
Education	OR = 1.07 (0.99, 1.16)	OR = 1.10* (1.02, 1.19)	OR = .87* (0.80, 0.95)	OR = 1.09 (0.94, 1.27)	OR = 1.02 (0.80, 1.31)	OR = .91 (0.78, 1.05)
Any other stressful life events	OR = 1.31* (1.10, 1.57)	OR = 1.53* (1.26, 1.85)	OR = 1.63* (1.25, 2.12)	OR = 2.08* (1.29, 3.33)	OR = 2.90* (1.54, 5.45)	OR = 1.28 (0.84, 1.96)
Social support	OR = 1.21* (1.09, 1.34)	OR = 1.13* (1.01, 1.26)	OR = 1.10 (0.97, 1.25)	OR = 1.37* (1.17, 1.60)	OR = 1.22 (0.93, 1.60)	OR = 1.42* (1.15, 1.75)
Interpersonal violence types						
Kidnapped	OR = 1.03 (0.60, 1.74)	OR = 1.45 (0.77, 2.72)	OR = .93 (0.45, 1.91)	OR = 1.80 (0.93, 3.47)	OR = .90 (0.34, 2.34)	OR = 2.72* (1.18, 6.26)
Childhood physical abuse	OR = 1.46 (1.09, 1.95)	OR = 1.44 (1.08, 1.93)	OR = 1.52* (1.12, 2.06)	OR = 1.32 (0.92, 1.90)	OR = 1.56 (0.78, 3.12)	OR = 1.46 (0.95, 2.24)
Physical assault by intimate partner	OR = 1.40 (1.05, 1.88)	OR = 1.30 (0.98, 1.73)	OR = 2.31* (1.68, 3.17)	OR = 2.29* (1.57, 3.34)	OR = 1.59 (0.82, 3.08)	OR = 2.41* (1.48, 3.93)
Physical assault by someone other than parents or intimate partner	OR = 1.35 (1.04, 1.76)	OR = 1.49* (1.13, 1.97)	OR = 2.45* (1.84, 3.27)	OR = 1.13 (0.74, 1.73)	OR = 1.14 (0.52, 2.47)	OR = 1.58 (0.97, 2.57)
Mugged	OR = 1.38* (1.04, 1.76)	OR = 1.31* (1.07, 1.59)	OR = 1.72* (1.38, 2.14)	OR = 1.85* (1.35, 2.52)	OR = 1.22 (0.74, 2.01)	OR = 1.17 (0.80, 1.73)
Raped	OR = 1.47* (1.13, 1.89)	OR = 1.48* (1.15, 1.91)	OR = 1.96* (1.45, 2.65)	OR = 2.38* (1.70, 3.33)	OR = .85 (0.43, 1.65)	OR = 1.99* (1.35, 2.92)
Sexual assault other than rape	OR = 1.54* (1.24, 1.90)	OR = 2.06* (1.66, 2.54)	OR = 1.26 (0.95, 1.66)	OR = 2.09* (1.48, 2.95)	OR = 1.48 (0.79, 2.77)	OR = 1.21 (0.82, 1.78)
Stalked	OR = 1.44* (1.14, 1.81)	OR = 1.53* (1.21, 1.94)	OR = 1.05 (0.79, 1.40)	OR = 1.30 (0.91, 1.85)	OR = 2.18* (1.23, 3.87)	OR = 1.01 (0.69, 1.50)

(*table continues*)

Table 3 (*continued*)

	Anxiety disorders OR (CI)	Mood disorders OR (CI)	SUDs OR (CI)	PTSD OR (CI)	Eating disorders OR (CI)	Suicide attempt OR (CI)
Witnessed inter-parental violence	OR = 1.50* (1.22, 1.86)	OR = 1.47* (1.18, 1.83)	OR = 1.64* (1.28, 2.08)	OR = 1.85* (1.37, 2.50)	OR = 1.92 (1.03, 3.55)	OR = 1.17 (0.81, 1.68)

Note. Results are from weighted binary logistic regression models. The reference group comprises individuals who never experienced the specific type of interpersonal violence exposure. Anxiety disorders = panic disorder, agoraphobia with and without a history of panic disorder, social phobia, specific phobia, and generalized anxiety disorder; mood disorders = major depressive disorder, dysthymic disorder, bipolar I and II disorders; SUDs = substance use disorders (alcohol abuse, alcohol dependence, drug abuse, and drug dependence); PTSD = posttraumatic stress disorder; eating disorders = bulimia nervosa and binge eating disorder; suicide attempt = history of at least one suicide attempt. Any other stressful life events = any non-interpersonal violence stressful life event (see *http://www.icpsr.umich.edu/CPES/diagnostics/DSM-IV_Posttraumatic_Stress_Disorder.pdf* for a complete list). OR = odds ratio; CI=95% confidence interval. *denotes significance at $p < .01$.

disorders, or attempted suicide (full results available from the authors upon request). To maximize power to detect significant interpersonal violence exposure × gender interactions, a sum score of interpersonal violence types (0–9) was created. The main effects of this variable and gender, as well as their product term, were entered into regression models for each of the aforementioned outcomes. Gender did not moderate associations between the sum of different types of interpersonal violence exposures and any of the mental health outcomes: anxiety disorders (OR = .95, 95% CI: .84, 1.06), mood disorders (OR = .91, 95% CI: .81, 1.02), SUDs (OR = .93, 95% CI: .82, 1.05), PTSD (OR = .95, 95% CI: .80, 1.11), eating disorders (OR = .74, 95% CI: .58, .93), or attempted suicide (OR = 1.10, 95% CI: .91, 1.33).

Discussion

An unintentional consequence of the predominant focus on women in the interpersonal violence literature is that it has resulted in an incomplete understanding of the prevalence and mental health effects of certain forms of interpersonal violence for men relative to women. Using epidemiological data from a large U.S. national sample of women and men, this report is among the first to comprehensively examine gender differences in the prevalence of nine specific forms of interpersonal violence and determine whether the associations of interpersonal violence with a comprehensive assessment of lifetime mental disorders and attempted suicide vary for women and men.

Consistent with previous work (Breslau et al., 1991; Kessler et al., 1995; Resnick et al., 1993), findings revealed that a substantial proportion of U.S. women *and* men experience at least one form of interpersonal violence at some point in their lives. The prevalence of various types of interpersonal violence reported in this study was generally consistent with other studies using national samples and similar assessments of interpersonal violence exposure (e.g., Kessler et al.1995; Rees et al., 2011). This study extends previous work because it is one of the most comprehensive studies to date in terms of the number of different types of interpersonal violence exposures examined and the explicit focus on gender. Results from the first aim of this

study corroborate previous research showing gender differences in the prevalence of exposure to specific types of interpersonal violence (Kessler et al., 1995; Tolin & Foa, 2006; Widom, Czaja, & Dutton, 2008). Specifically, women were more likely than men to report being the victim of kidnapping, physical assault by an intimate partner, rape, other sexual assault, and stalking. In contrast, men were more likely than women to report a history of mugging and physical assault by someone other than a parent or intimate partner. No differences were found between women and men in exposure to childhood physical abuse or witnessing violence in the home.

Findings from the second aim of this study found that interpersonal violence was strongly associated with elevated risk for many mental disorders and a history of attempted suicide, consistent with previous research (Kessler et al., 1995; Resnick et al., 1993; Stein et al., 2010). Mood and substance use disorders were each associated with six of the nine types of interpersonal violence exposure. PTSD and other anxiety disorders were each associated with five of the different types of interpersonal violence. Eating disorders was associated only with stalking. Of note, rape and witnessing interparental violence were two forms of interpersonal violence that were most consistently associated with negative mental health outcomes. It is possible that the factors such as relationship to the perpetrator and/or chronicity of such exposures may help to explain the strong associations between these two forms of interpersonal violence exposure and mental health outcomes (Kimerling et al., 2007).

In terms of the third aim of this study, analyses revealed that gender did not significantly moderate the impact of any of the forms of interpersonal violence exposure on any of the mental health outcomes examined in this study. In other words, the strength of the associations between various forms of interpersonal violence exposure and mental health outcomes were similar for women and men. It may be that some of the moderation analyses were underpowered. Despite the large sample size, the prevalence of some forms of interpersonal violence was quite low, especially among men (e.g., rape and physical assault by an intimate partner). It is important to note, however, that gender also did not moderate the associations between more common forms of interpersonal violence, such as mugging, and mental health outcomes. Thus, it is possible that although there are gender differences in the risk for several different types of interpersonal violence exposure, the mental health consequences of such experiences are similar for women and men. This finding is consistent with previous studies which focused on gender differences in mental health outcomes associated with childhood maltreatment (Dube et al., 2005; Levitan et al., 1998; McLaughlin et al., in press). Although gender differences were not found in terms of the associations between various types of interpersonal violence exposures and the mental health outcomes examined in this study, it is important to remember that more women than men had mental health outcomes (i.e., mood, anxiety, PTSD, eating disorders, and suicide attempts). Thus, it is possible that women's greater exposure to particularly invasive types of interpersonal violence, such as rape, may account for increased risk for some types of mental health conditions.

Limitations

This study is among the first to examine whether the mental health impact of exposure to a wide array of interpersonal violence exposures across the life span differs for women and men using a large, nationally representative sample and numerous mental health outcomes. Additional strengths of this study are the use of comprehensive assessments of interpersonal violence exposure and mental health outcomes. Nonetheless, there are important limitations of this study. The cross-sectional nature of the research design precludes us from determining conclusively that interpersonal violence exposures occurred previous to the onset of mental health outcomes. It is possible that the onset of mental disorders or suicide attempts occurred before exposure to interpersonal violence, and evidence suggests that a variety of mental disorders increase risk for subsequent exposure to stressful life events and revictimization (Koenen, Moffitt, Poulton, Martin, & Caspi, 2007). This is a particular concern for exposures that occur most frequently in adulthood, such as physical assault by an intimate partner (Iverson et al., in press).

Another limitation of this investigation is the use of dichotomous variables of interpersonal violence types, which do not take into account other important characteristics of the interpersonal violence exposures, including frequency, severity, chronicity, relationship to the perpetrator and associated injuries. Moreover, the assessment of each type of interpersonal violence exposure typically consisted of a single question, which may lead to false-negative responses (i.e., underestimates of interpersonal violence exposures). Finally, the data reported here were collected between 2001 and 2003. It was important to use population-based data to make firm conclusions about gender in terms of the prevalence and impact of interpersonal violence exposure at the population level. Smaller studies not only have insufficient power to examine these effects, but are limited in the conclusions that can be drawn at the population level. The NCS-R is one of only two nationally representative surveys estimating the prevalence and correlates of *DSM–IV* disorders in the United States, and data from the original National Comorbidity Study and NCS-R suggest that the prevalence of mental disorders has not changed over time in the U.S. population (Kessler, Demler, et al., 2005).

Future Research

Although this study examined nine forms of interpersonal violence, there are other types of violence that were not available in the current dataset, such as peer victimization and sex trafficking, and future research should include psychometrically rigorous evaluations of specific types of interpersonal violence experiences. In particular, nationally representative studies should test mediators and moderators of the associations between polyvictimization, or multiple types and instances of victimization, and health outcomes. Future inquiries should also examine the onset and persistence of mental health outcomes, including current mental disorders, to more fully understand the health impact of interpersonal violence in women and men, including any gender differences that may exist in terms of mental and physical health outcomes. Future studies might also explore the role of interpersonal violence exposure in explaining gender differences in risk for externalizing and internalizing disorders (Kessler et al., 2005). In addition, this study did not test a comprehensive theoretical model because previous research is inconsistent with regard to the role of gender in placing victims of interpersonal violence at risk for adverse mental health outcomes. This type of future research will be imperative to informing theory, practice, and policy and improving intervention efforts for all survivors of interpersonal violence (Hamby, 2011). It is hoped that the current study will stimulate the development of theory and hypothesis testing in this understudied area.

Clinical and Policy Implications

Our results have implications for improving health services for women and men. Currently, many outreach and prevention efforts focus predominantly on women (e.g., sexual assault and rape counseling centers on college campuses). This focus on women is understandable and important given that rates of exposure to several forms of interpersonal violence, including sexual assault and rape, generally are higher for women. Moreover, such forms of interpersonal violence were associated with many mental health outcomes in this study, so a continued focus on the identification and treatment of women who have experienced interpersonal violence remains important. However, the current data demonstrate that men also experience various forms of interpersonal violence, and such exposures have similar effects on the mental health of women and men. In light of previous work suggesting that men are more reluctant than women to seek mental health services (e.g., Bland, Newman, & Orn, 1997; Wang et al., 2005), the current findings underscore the need for outreach efforts targeted specifically at men. Such outreach may be particularly important for those forms of interpersonal violence that are more common among men, such as mugging and physical assault perpetrated by individuals other than parents or intimate partners.

In addition, the significant rates of interpersonal violence exposure and associated mental health outcomes found in this study underscore the important role of health care providers, especially mental health providers, in routine identification of female *and* male interpersonal violence survivors. Although the Institute of Medicine (IOM) now advocates screening and counseling for interpersonal violence among women (Institute of Medicine, 2011), the fre-

quency and quality of such practices are variable (Bradley, Smith, Long, & O'Dowd, 2002; Rhodes et al., 2007; Sugg & Inui, 1992) and IOM recommendations do not yet include screening and counseling for men. Nevertheless, major medical associations such as the American Academy of Neurology, are increasingly calling on health care providers to screen all of their patients for a history of interpersonal violence exposure (Schulman & Hohler, 2012). From a policy standpoint, these data suggest there may be utility in routine screening of both women and men for interpersonal violence exposure and associated mental health conditions. Fortunately, several screening tools have established psychometric properties and can be further evaluated for use with men in various settings (for reviews, see Haggerty, Hawkins, Fontenot, & Lewis-O'Connor, 2011; Rabin, Jennings, Campbell, & Bair-Merritt, 2009).

Increasing screening for both women and men is important because interpersonal violence screening programs have been shown to be cost-effective in increasing male and female survivors' engagement in mental health treatment (Kimerling, Street, Gima, & Smith, 2008). In particular, trauma-focused cognitive–behavioral therapies are effective in reducing a wide-array of mental health symptoms, including the outcomes examined in this study (e.g., Cloitre, Koenen, Cohen, & Han, 2002; Foa et al., 2005; Gallagher & Resick, in press; Mitchell et al., 2012; Resick et al., 2008; Resick, Nishith, Weaver, Astin, & Feuer, 2002). Although men and women have different risk for specific types of interpersonal violence exposure, psychosocial treatments are effective in treating mental health problems associated with many different forms of interpersonal violence and research does not yet suggest that one empirically supported treatment is more appropriate over others for treating distress associated with different forms of interpersonal violence (see Iverson, Lester, & Resick, 2011). Furthermore mental health treatments are not only important for recovery; they may help reduce risk for revictimization (Iverson, Gradus, et al., 2011).

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