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# Physical and Mental Health Effects of Intimate Partner Violence for Men and Women

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**Background:** Few population-based studies have assessed the physical and mental health consequences of both psychological and physical intimate partner violence (IPV) among women or men victims. This study estimated IPV prevalence by type (physical, sexual, and psychological) and associated physical and mental health consequences among women and men.

**Methods:** The study analyzed data from the National Violence Against Women Survey (NVAWS) of women and men aged 18 to 65. This random-digit-dial telephone survey included questions about violent victimization and health status indicators.

**Results:** A total of 28.9% of 6790 women and 22.9% of 7122 men had experienced physical, sexual, or psychological IPV during their lifetime. Women were significantly more likely than men to experience physical or sexual IPV (relative risk [RR]=2.2, 95% confidence interval [CI]=2.1, 2.4) and abuse of power and control (RR=1.1, 95% CI=1.0, 1.2), but less likely than men to report verbal abuse alone (RR=0.8, 95% CI=0.7, 0.9). For both men and women, physical IPV victimization was associated with increased risk of current poor health; depressive symptoms; substance use; and developing a chronic disease, chronic mental illness, and injury. In general, abuse of power and control was more strongly associated with these health outcomes than was verbal abuse. When physical and psychological IPV scores were both included in logistic regression models, higher psychological IPV scores were more strongly associated with these health outcomes than were physical IPV scores.

**Conclusions:** Both physical and psychological IPV are associated with significant physical and mental health consequences for both male and female victims.

**Medical Subject Headings (MeSH):** battered women, chronic disease, domestic violence, epidemiologic methods, spouse abuse (Am J Prev Med 2002;23(4):260–268) © 2002 American Journal of Preventive Medicine

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## Introduction

Despite the increasingly well-documented literature on the prevalence of intimate partner violence (IPV) in clinical<sup>1–15</sup> and population-based studies<sup>16–27</sup> and its impact on mental health,<sup>28–42</sup> little epidemiologic research has focused on its long-term, physical health consequences,<sup>43,44</sup> particularly among male victims. Furthermore, with noted excep-

tions,<sup>15,44,45</sup> the majority of past studies addressing the health effects of IPV measured physical assaults alone without considering the co-existing chronic psychological abuse characteristic of violent relationships. This study adds to existing literature by describing the health effects of physical and psychological IPV on women and men. This is one of the first reports of a population-based study to assess associations among physical, sexual, and psychological abuse and current and long-term mental and physical health of female and male victims.

## Methods

This study analyzed data from the National Violence Against Women Survey (NVAWS) conducted by Tjaden and Thoennes.<sup>46,47</sup> This random-digit-dial telephone survey of 8001 men and 8005 women, sampled to be representative of the U.S. population, estimated rates of sexual assaults, physical assaults, and stalking victimization among men and

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**Table 1.** Comparison of women and men, aged 18 to 65, experiencing intimate<sup>a</sup> partner violence by type

IPV by type (victim)	Number and percentage reporting violence by type				aRR <sup>b</sup> (95% CI) for IPV and gender
	Women (N=6790)		Men (N=7122)		
	<i>n</i>	IPV prevalence %	<i>n</i>	IPV prevalence %	
Any IPV (physical, sexual, or psychological)	2014	29.7	1656	23.3	1.3 (1.2–1.4)
Physical or sexual IPV <sup>c</sup>	1193	17.6	421	5.9	2.2 (2.1–2.4)
Sexual, no physical IPV <sup>c</sup>	295	4.3	11	0.1	16.2 (9.0–28.8)
Physical, no sexual IPV <sup>c</sup>	898	13.3	410	5.8	1.8 (1.7–2.0)
Psychological IPV alone	821	12.1	1235	17.3	0.8 (0.7–0.9)
Abuse of power/control	469	6.9	484	6.8	1.1 (1.0–1.2)
Verbal abuse	352	5.2	751	10.5	0.8 (0.7–0.9)
No IPV (referent group)	4776	70.3	5466	76.7	1.0 referent

<sup>a</sup>An intimate is defined as a current or former spouse, or live-in boyfriend or girlfriend.

<sup>b</sup>Adjusted for age, race, health insurance status, and childhood physical and sexual abuse.

<sup>c</sup>Majority (>90%) also report psychological IPV.

aRR, adjusted relative risk; CI, confidence interval; IPV, intimate partner violence.

women. A simple random sample of working residential phone numbers was drawn, and interviews were conducted from November 1995 to May 1996. Tjaden and Thoennes<sup>22</sup> report a response rate of 72.1% for women participants and 68.9% for men. Detailed questions included the nature of the victimization, respondent's relationship with the perpetrator, and respondent's age when first assaulted. The interview also included questions to characterize the demographic profile and the health status of the respondent.

## Measures of Lifetime Intimate Partner Violence

In this study, IPV victimization was defined as physical, sexual, or psychological abuse by an intimate partner (defined as a current or former spouse or a cohabiting intimate partner, regardless of gender). In the NVAWS design, Tjaden and Thoennes<sup>22</sup> used the 12-item Conflict Tactics Scale (CTS)<sup>48</sup> to measure physical aggression by an adult (scale measure of internal consistency, Cronbach alpha=0.81); the four-item forced sex questions from the National Women's Study,<sup>49</sup> and the 13-item Power & Control Scale<sup>50</sup> to measure psychological abuse by a partner. We used a cut-point of >1 on the CTS to define lifetime physical aggression by a partner. We defined forced sex by an intimate partner to include completed vaginal, anal, or oral sex. We excluded 23 women and 5 men who reported attempted sexual assault by an intimate partner to maintain consistency with other studies<sup>38,44,45</sup> addressing IPV and health.

We used data from the 13-item Power & Control Scale<sup>50</sup> collected in the NVAWS to create two subscales of psychological abuse: verbal abuse and abuse of power and control. We dropped one item—"My partner is afraid of me"—because this is not abuse by a partner. We used exploratory principal-component factor analysis to identify those items that loaded on two constructs. Five items loaded on the same factor for both women and men and were used to measure verbal abuse: "shouts or swears at you" (standard regression coefficient [SRC]=0.81); "provokes arguments" (SRC=0.80); "calls you names or puts you down in front of others" (SRC=0.64); "has a hard time seeing things from your point of view" (SRC=0.83); and "is jealous or possessive" (SRC=0.75). The Cronbach alpha coefficient for the verbal abuse subscale was

0.85. The five items loaded on a second factor and formed a measure of abuse of power and control: "frightens you" (SRC=0.67); "makes you feel inadequate" (SRC=0.42); "prevents you from knowing about or having access to the family income even when you ask" (SRC=0.55); "prevents you from working outside the home" (SRC=0.86); and "insists on changing residence even when you don't need or want to" (SRC=0.70). Two remaining factors—"tries to limit your contact with family or friends" and "insists on knowing who you are with at all times"—were loaded with the verbal abuse factors, yet we included these in the abuse of power and control subscale because these statements tap efforts by the partner to limit or control a partner and are not methods of verbal harassment. The Cronbach alpha for the seven-item subscale of abuse of power and control was 0.83. We used a cut-point of >2 on each subscale to dichotomously measure psychological abuse by type.

Because there is considerable collinearity between IPV types (Table 1), we created a 4-level hierarchical category of IPV for the analysis of IPV and health outcomes. The first group included respondents experiencing physical or sexual IPV; respondents may have also experienced verbal abuse or abuse of power and control. The second group included those experiencing abuse of power and control yet not sexual or physical IPV; respondents may have also experienced verbal abuse. The third group experienced verbal abuse alone, and the comparison (fourth) was comprised of those who had never experienced IPV.

## Demographics and Other Violence Experienced

We included six demographic factors from NVAWS data: respondent's age, ethnicity, current employment status, current marital status, education, and family income (Table 2). We used the 12-item CTS<sup>48</sup> collected in the NVAWS to measure physical assaults during childhood (Cronbach alpha=0.81). We used a cut-point of >1 to define physical child abuse. We also used data from the four-item sexual assault questions and the victim-perpetrator relationship to create a variable measuring sexual assaults by a relative; 86% of the assaults occurred when the respondent was aged <18 years.

**Table 2.** Demographic correlates of lifetime IPV victimization among women and men

Characteristic strata	Women (N=2014)		Men (N=1656)	
	n in strata	% IPV	n in strata	% IPV
Age				
18–25 (ref)	943	19.7	1046	16.3
26–35	1756	31.2**	1846	23.0**
36–45	1868	32.4**	2033	27.3**
46–55	1388	33.1**	1392	25.6**
56–65	835	25.9**	805	18.6
Race				
White (ref)	5181	29.3	5491	22.2
African American	657	33.0	577	30.8**
Hispanic	581	27.5	557	23.9
Asian	112	12.8	146	11.8**
Native American	67	38.2*	79	41.2**
Mixed race/ethnicity	134	43.5*	184	34.3*
Refused	58	39.4	88	40.0
Education				
<High school graduate	613	38.0**	637	29.7**
High school graduate	2299	31.9**	2209	25.1**
Some college	2053	32.3**	1942	26.1**
College graduate (ref)	1825	21.0	2334	17.4
Current marital status				
Divorced or separated	954	70.8**	762	60.1**
Widowed	221	29.0	52	40.4**
Single	1175	19.3**	1636	16.4**
Married (ref)	4440	23.6	4672	19.4
Health insurance				
No insurance	1065	37.9**	1021	31.5**
Government	613	43.1**	620	26.8**
Private (ref)	5052	26.6	5382	21.5
Don't know/refused	60	10.0**	99	12.1
Household income				
<\$20,000	1341	41.8**	881	29.3**
\$20,000–\$34,999	1147	33.7**	1237	28.6**
\$35,000–\$49,999	1134	26.7**	1262	23.0
\$50,000–\$80,000	997	26.4*	1388	22.3
>\$80,000 (ref)	544	20.2	864	20.8
Refused	1627	23.3	1490	17.4
Currently employed (ref)	4868	29.8	6163	22.8
Unemployed	1922	29.6	959	26.5*
Childhood physical abuse	1656	48.0**	2488	33.9**
No history (ref)	5133	23.8	4634	17.5
Forced sex by a relative	302	55.6**	42	40.5**
No history (ref)	6488	28.5	7080	23.2

\**p* value 0.01–0.05; \*\**p* value <0.01; denoted correlate of increased IPV risk.  
 IPV, intimate partner violence; ref, reference group.

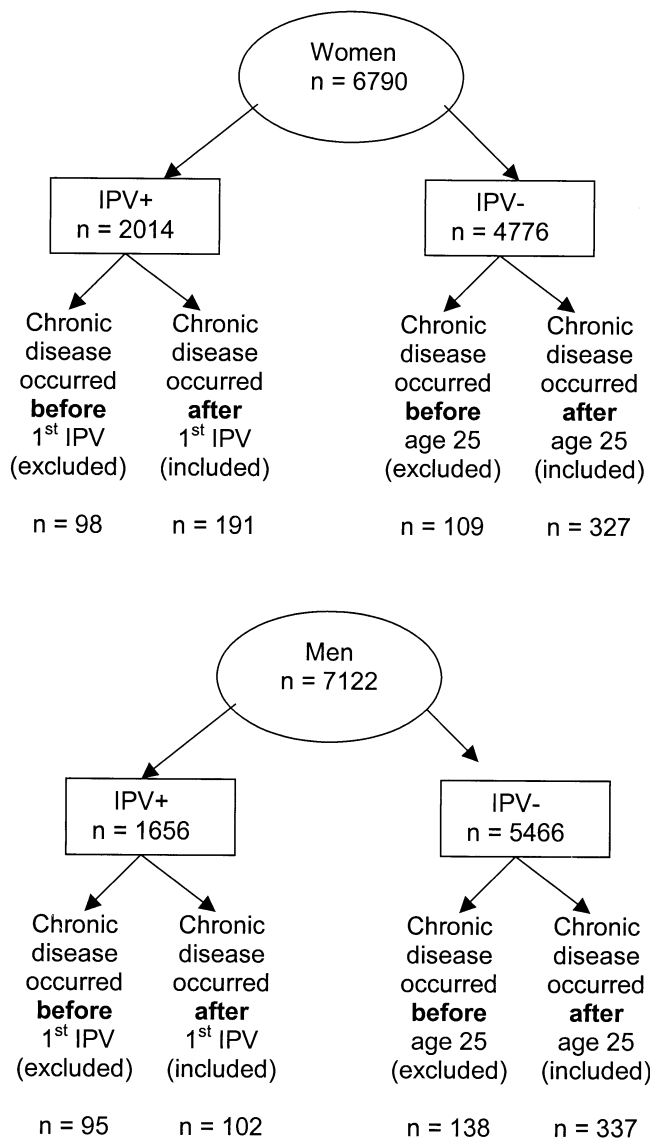
## Health Indicators

The NVAWS is a cross-sectional study. We have used these data to address (1) current mental and physical health status and substance use, and (2) development of a chronic mental illness, physical disease, or injury. To create the correct temporal sequence for the latter analysis, we used data on age at first IPV experience and age at first chronic disease or injury. To create measures of developing an injury or chronic illness, IPV victims whose health problem occurred before they experienced IPV were eliminated. Figure 1 is an example of those with a chronic disease who were excluded from analyses because their chronic disease occurred before IPV. Among those never experiencing IPV, we excluded those developing chronic diseases, mental illnesses, or injuries

before age 25, as this was the mean age at first IPV victimization.

Current physical health was assessed with the following question: “In general, would you say your health was . . . excellent, very good, good, fair, or poor?” We then created a dichotomous variable measuring poor health (2.4%) compared with fair, good, very good, and excellent health.

Current depressive symptoms were assessed using questions contained in the SF-36 Health Survey<sup>51</sup> (Cronbach alpha=0.78 for eight-item scale, range 8 to 32). These eight questions were selected from the 13 items used by Beck and Beck<sup>52</sup> as the short form of the Beck Depression Inventory (BDI). The BDI is the standard short-form screening device in the field<sup>53</sup> and correlates 0.91 with the full 21-item BDI. We



**Figure 1.** Exclusions to create the correct temporal sequence for IPV and developing a chronic disease analysis

used a cut-point of >20, which is more conservative than the >16 suggested by Beck and Beck<sup>52</sup>; 10.4% reported significant depressive symptoms with this definition.

Current drug use was defined to include use within the preceding month of tranquilizers (4.3%), sedatives (4.3%), antidepressants (3.8%), prescription painkillers (9.6%), or illegal recreational drug use (3.5%). Current alcohol use over the last 12 months was measured in the NVAWS by the average days per week or month alcohol was consumed and, on days alcohol was consumed, the number of drinks per day. We used these questions to define heavy alcohol use as those using alcohol at least three to four times per week and drinking at least four drinks per day, relative to those who drank less than this amount; 6.9% of men and 1.3% of women were heavy alcohol users.

Past injuries (9.0%) were identified with the following question: “Have you ever sustained a serious injury, such as a spinal cord, neck, or head injury, that is disabling or inter-

feres with your normal activities?” Respondents were asked to describe the nature of the injury and their age at injury.

Respondents were asked to identify their chronic health conditions (9.9%) and the ages at which they first acquired these conditions: hypertension or heart disease ( $n = 843$ ); diabetes ( $n = 124$ ); arthritis or connective tissue disease ( $n = 83$ ); asthma or emphysema ( $n = 80$ ); and cancer ( $n = 29$ ).

Chronic mental illness (2.1%) was assessed by asking: “Do you have a chronic mental health disease or condition, such as chronic depression or schizophrenia, that is disabling or interferes with your normal activities?” Respondents were again asked to identify the mental health condition and provide the age at first diagnosis.

Finally, to provide an indicator of the impact of health conditions on everyday life, we used data from the following question: “To what extent did this disability or condition interfere with your normal activities in the past week?” We created a dichotomous indicator to include those who responded that the condition currently impacted their life “extremely” or “quite a bit”; chronic mental illness had high impact for 0.3% of respondents, and chronic diseases had high impact for 0.7%.

## Exclusions

We excluded from the analyses persons aged >65 (1159 women and 840 men) and those who did not report their age, education, or marital status (52 women and 43 men). The total sample used was comprised of 6790 women and 7122 men.

## Statistical Analyses

All analyses were conducted using SAS, Version 8.1. We chose not to weight the NVAWS data to maintain consistency with all published estimates from the NVAWS. Furthermore, as our research objective was analytical and not descriptive, our use of unweighted data was justified, as recommended by Korn and Graubard.<sup>54</sup> We did, however, adjust all relative risk estimates for race, health insurance status, and age as a means of reducing bias associated with differing response rates by these demographic factors.

Table 3 provides point estimates for lifetime (i.e., ever) IPV by type, comparing men with women. We calculated relative risks using the Mantel-Haenszel method and test-based 95% confidence intervals (CIs) for the association between each health indicator and IPV by type. All analyses were stratified by gender.

Data presented in Table 2 were used to determine confounders to be included in all multivariate logistic regression models (Tables 3 and 4); childhood physical and sexual abuse by a relative was included with age, race and insurance status. We used insurance status as a proxy for income, because 22% of respondents refused to provide income information and having private health insurance was strongly associated with higher income. We opted to dichotomize health outcomes, instead of using the ordinal or continuous outcome data, because the relative risk for a dichotomous outcome is much easier to interpret. To explore dose-response associations between psychological and physical IPV scores and health outcomes, we created ordinal variables from the continuous scale scores (Table 4) Those experiencing no IPV were included as the comparison group for the three levels of IPV

**Table 3.** Lifetime IPV by type (physical or psychological) and current perceived health status among women and men aged 18-65 years

Health outcomes	Women (N=6790)			Men (N=7122)		
	Psychological alone			Psychological alone		
	Physical <sup>a</sup>	Power/ control	Verbal <sup>b</sup>	Physical <sup>a</sup>	Power/ control	Verbal <sup>b</sup>
	(n=1193) aRR* (95% CI)	(n=469) aRR* (95% CI)	(n=352) aRR* (95% CI)	(n=421) aRR* (95% CI)	(n=484) aRR* (95% CI)	(n=751) aRR* (95% CI)
<b>Current</b>						
Poor health	2.0 (1.3–2.9)	2.1 (1.4–3.3)	1.5 (0.8–2.8)	1.9 (1.0–3.5)	2.2 (1.4–3.4)	1.0 (0.6–1.7)
Depressive symptoms	2.1 (1.8–2.6)	2.0 (1.6–2.6)	1.8 (1.3–2.4)	1.9 (1.4–2.6)	2.2 (1.7–2.9)	1.6 (1.2–2.0)
Heavy alcohol use	2.6 (1.6–4.3)	2.9 (1.5–5.8)	3.2 (1.6–6.6)	1.4 (0.9–2.0)	1.7 (1.2–2.3)	1.6 (1.2–2.1)
Tranquilizer use	2.2 (1.7–2.8)	1.9 (1.4–2.7)	1.5 (1.0–2.4)	1.8 (1.1–2.9)	1.8 (1.2–2.7)	1.6 (1.1–2.3)
Painkiller use	1.8 (1.5–2.2)	1.8 (1.4–2.3)	1.4 (1.0–1.9)	1.7 (1.2–2.3)	2.1 (1.6–2.7)	1.4 (1.1–1.8)
Antidepressant use	2.5 (1.9–3.2)	2.1 (1.5–3.0)	1.8 (1.2–2.8)	2.3 (1.3–3.9)	1.8 (1.1–2.9)	1.4 (0.9–2.3)
Recreational drug use	1.4 (0.6–2.2)	2.1 (1.3–3.5)	0.5 (0.2–1.3)	1.9 (1.2–2.9)	2.6 (1.8–3.7)	2.4 (1.7–3.2)
<b>Development of chronic health outcome</b>						
Chronic disease	1.6 (1.3–2.0)	1.1 (0.7–1.6)	1.1 (0.7–1.7)	1.5 (1.0–2.3)	0.8 (0.6–1.3)	0.8 (0.6–1.1)
Chronic mental illness	3.3 (2.0–5.3)	1.8 (0.9–3.9)	1.9 (0.8–4.6)	1.2 (0.4–3.5)	2.8 (1.4–5.5)	1.9 (1.0–3.8)
Injury	2.8 (2.2–3.7)	1.8 (1.3–2.6)	1.6 (1.0–2.5)	2.4 (1.7–3.4)	1.8 (1.3–2.5)	1.4 (1.0–1.9)
<b>Current impact of chronic health outcome</b>						
Chronic disease	3.1 (1.6–6.0)	1.8 (0.7–4.6)	1.6 (0.5–5.3)	2.4 (0.9–6.5)	3.0 (1.4–6.3)	0.9 (0.3–2.5)
Mental illness	7.5 (2.8–20.4)	4.2 (1.2–15.2)	1.7 (0.2–14.6)	3.1 (0.8–11.9)	3.5 (1.1–10.5)	1.6 (0.4–6.0)

\*Adjusted for age, race, health insurance status, and childhood physical and sexual abuse.

aRR, adjusted relative risk; CI, confidence interval; IPV, intimate partner violence.

<sup>a</sup>Physical or sexual IPV.

<sup>b</sup>Psychological IPV without physical or sexual IPV.

exposure. Two sets of ordinal IPV measures (for physical and psychological IPV) were included as independent variables in the same multiple logistic regression models, with the health outcomes as the dependent variable.

## Results

The lifetime prevalence of physical IPV alone was 13.3% for women and 5.8% for men; the prevalence of sexual IPV alone was 4.3% for women and 0.2% for men; and the prevalence of psychological IPV alone was 12.1% for women and 17.3% for men (Table 1). Women were significantly more likely than men to report sexual or physical IPV during their lifetime.

Although women were significantly less likely than men to report verbal abuse alone (adjusted relative risk [aRR]=0.8, 95% CI=0.7–0.9), women were more likely than men to report abuse of power and control issues without physical or sexual IPV (aRR=1.1, 95% CI=1.0–1.2).

Of the demographic variables presented in Table 2 as significantly associated with IPV, only race was no longer significantly associated with IPV after adjustment for age, race, health insurance, and childhood physical and sexual abuse for both women and men. Current employment and family income were no longer significant for male victims after similarly adjusting for confounding. The strongest risk factor for IPV

**Table 4.** Severity of IPV by type (physical or psychological) and health outcomes by gender

Type of IPV	Health outcome	
	Women aRR <sup>a</sup> (95% CI)	Men aRR <sup>a</sup> (95% CI)
<b>Physical health</b>		
Physical or sexual IPV	<b>Current poor health<sup>a</sup></b>	
High (>7)	1.4 (0.7–2.7)	2.5 (0.9–6.8)
Med (5–7)	1.0 (0.5–2.0)	0.9 (0.3–2.5)
Low (2–4)	1.0 (0.6–1.8)	1.0 (0.3–2.7)
Psychological IPV	<b>Current poor health<sup>b</sup></b>	
High (>7)	2.0 (1.4–3.0)	2.6 (1.7–4.1)
Med (4–7)	1.2 (0.7–2.0)	1.0 (0.6–1.8)
Low (2–3)	1.1 (0.7–1.9)	1.8 (1.1–2.8)
Physical or sexual IPV	<b>Developing a chronic disease<sup>b</sup></b>	
High (>7)	1.2 (0.7–1.9)	2.2 (0.9–5.6)
Med (5–7)	1.2 (0.8–1.9)	2.1 (1.1–3.8)
Low (2–4)	0.9 (0.6–1.3)	1.5 (0.9–2.6)
Psychological IPV	<b>Developing a chronic disease<sup>b</sup></b>	
High (>7)	1.6 (1.2–2.1)	0.9 (0.6–1.2)
Med (4–7)	1.1 (0.8–1.5)	1.0 (0.8–1.4)
Low (2–3)	1.2 (0.9–1.6)	1.0 (0.8–1.4)
Physical or sexual IPV	<b>Injury<sup>a</sup></b>	
High (>7)	1.7 (1.1–2.7)	2.1 (1.1–3.9)
Med (5–7)	1.2 (0.8–1.8)	1.0 (0.5–1.8)
Low (2–4)	1.2 (0.8–1.7)	0.6 (0.3–1.1)
Psychological IPV	<b>Injury<sup>b</sup></b>	
High (>7)	2.5 (1.8–3.3)	2.0 (1.5–2.7)
Med (4–7)	1.1 (0.8–1.7)	1.4 (1.0–1.9)
Low (2–3)	1.4 (1.0–2.0)	1.3 (0.8–1.7)
<b>Mental Health</b>		
Physical or Sexual IPV	<b>Current depressive symptoms<sup>a</sup></b>	
High (>7)	1.6 (1.1–2.2)	1.9 (1.1–3.2)
Med (5–7)	1.2 (0.8–1.5)	0.8 (0.5–1.2)
Low (2–4)	0.9 (0.7–1.2)	1.2 (0.8–1.8)
Psychological IPV	<b>Current depressive symptoms<sup>b</sup></b>	
High (>7)	1.9 (1.6–2.2)	1.8 (1.4–2.2)
Med (4–7)	1.6 (1.3–1.9)	1.6 (1.3–1.9)
Low (2–3)	1.5 (1.2–1.7)	1.3 (1.0–1.5)

<sup>a</sup>Adjusted for age, race, health insurance status, childhood abuse, and psychological IPV score.

<sup>b</sup>Adjusted for age, race, health insurance status, childhood abuse, and physical IPV score.

aRR, adjusted relative risk; CI, confidence interval; IPV, intimate partner violence.

in these data was being physically assaulted as a child for both men (aRR=2.5, 95% CI=2.2–2.8) and women (aRR=2.8, 95% CI=2.4–3.1). Among those in a current intimate relationship, partners' alcohol use was associated with current IPV experience for women (aRR=1.7, 95% CI=1.4–2.1) and men (aRR=1.9, 95% CI=1.4–2.6) after adjusting for childhood physical and sexual abuse (data not shown).

Table 3 presents adjusted relative risk for lifetime physical (and sexual IPV) and psychological (power/control and verbal abuse subscales) IPV victimization, and physical and mental health indicators by gender. This table begins with associations of lifetime IPV and current health status. Lifetime experience of either physical IPV or the power and control form of psychological IPV was significantly associated with self-re-

ported current poor health among women and men. All forms of IPV were significantly associated with current depressive symptoms for men and women. The associations were stronger for abuse of power and control than for verbal abuse. Heavy alcohol use and "therapeutic" drug use were associated with both physical and psychological IPV. In general, association between psychological IPV and these drug use outcomes was stronger for abuse of power and control than for verbal abuse for both men and women. For men, all forms of physical and psychological IPV were associated with recreational drug use. For women, abuse of power and control was significantly associated with recreational drug use; physical IPV was not associated with this outcome.

The association between IPV and developing a chronic health condition are presented next. Physical IPV was associated with history of a chronic disease for women and men. History of a chronic mental illness was associated with physical IPV for women and with abuse of power and control for men. Physical and psychological forms of IPV were associated with being injured among women and men. Associations were stronger for physical IPV; of the two psychological IPV categories, these associations were stronger for abuse of power and control than for verbal abuse for both men and women.

Physical IPV was associated with female respondents' perception that their chronic disease interfered with normal activities in the past week. The power and control form of psychological IPV was associated with the same perception in men.

For both men and women, increasing psychological IPV scores were strongly associated with an increased risk of current poor health and current depressive symptoms (Table 4). Higher physical as well as psychological IPV scores were associated with becoming injured for men and women. Higher psychological IPV scores, controlling for physical IPV scores, were associated with history of a chronic disease for women; a similar pattern was not observed in men.

## Discussion

Our analyses indicate that women experiencing IPV are more likely to report poor physical and mental health. These results are consistent with those of other studies.<sup>29,31,44,45,55–60</sup> Koss and Heslet<sup>60</sup> noted that various processes may contribute to health outcomes and perceptions of both health outcomes. Resnick et al.<sup>43</sup> found that many physical symptoms reported by abused women were similar to symptoms for anxiety and depression, further indicating a relationship with mental health outcomes as a result of IPV. Negative psychological and physical health consequences of IPV have been noted in some instances.<sup>43,61</sup> Our findings corroborate the theory that IPV victimization is associated with

a higher risk of negative mental and physical health outcomes.

The NVAWS exclusively addresses violence victimization among men and women. Some of the victims may also be perpetrators.<sup>62</sup> Using a question from the NVAWS regarding who was first to use force during a physical assault, we found that 11.6% of male victims of a physical assault reported that they were the first to use or threaten to use physical force, compared to 7.1% of women ( $p < 0.003$ ). A greater proportion of men victims than women may be perpetrators as well as victims; IPV victimization may be disproportionately misclassified by gender. An alternate interpretation for our finding that male victims are more likely to report adverse health conditions may be that men who batter may be at greater risk of these adverse health outcomes.

How IPV affects health may differ depending on the health outcome. Repeated physical assaults may directly increase risk of injuries or some chronic diseases, such as chronic pain, osteoarthritis, and severe headaches.<sup>38,40,44,63</sup> Chronic psychological stress associated with IPV may also affect other acute and chronic health conditions indirectly.<sup>30,44</sup> While our findings are consistent with both a direct and indirect impact of IPV, this study indicates that higher psychological IPV scores were more strongly associated with the majority of health outcomes than were physical IPV scores.

This is the first large population-based study to provide estimates of psychological violence among women and men. We found that both physical and psychological IPV are associated with mental as well as physical health outcomes for male and female victims. Approximately 14% of women and nearly 18% of men experienced psychological abuse alone during their lifetime. Almost half of IPV among women and >78% of IPV among men was psychological IPV, which would have been missed had we not included this component of partner violence in our study. Furthermore, psychological IPV was as strongly related as physical IPV to the range of health outcomes. Our data clearly show that psychological partner violence is associated with negative health outcomes. This finding deserves further study.

Several limitations of these data deserve mention. Specific chronic mental illnesses or chronic diseases could not be confirmed with medical records in this anonymous survey; therefore, health outcome data may be misclassified. Additionally, although we attempted to establish the correct temporal sequence whereby IPV would precede the health outcome, data for both age at first IPV and age at diagnosis were self-reported and may be misclassified.<sup>64</sup> Furthermore, we cannot exclude the possibility that those experiencing IPV may be more likely to seek care, and thus be diagnosed, compared with nonvictims who may not seek care as often. Those who have a chronic disease or are otherwise in poor health may be more likely to become IPV

victims. Because a larger proportion of respondents refused to provide income information, we could not adjust our analyses for income or a poverty index; therefore, we chose to adjust for private health insurance status as a proxy for income. As with all observational studies, residual confounding may still bias our relative risk estimates. Finally, we have limited statistical power to detect difference in risks for specific chronic diseases.

This research adds to existing literature by strongly suggesting a health impact of psychological and physical IPV among women and men. As recommended by the National Research Council,<sup>65</sup> our inclusion of psychological IPV reduced exposure misclassification. Further, assessing psychological IPV allowed us to investigate its impact on health, even when physical or sexual IPV were not present. We found that psychological and physical violence were associated with many of the same health outcomes—a finding that suggests a need for clinicians to screen for psychological forms of IPV as well as for physical and sexual assault in intimate relationships. This screening is particularly true for male victims, as they are more likely to experience psychological IPV than physical IPV.

Study power afforded by using the large population-based NVAWS is an important strength of this analysis. In contrast with past analyses of the health effects of IPV, we were able to control for the potential impact of demographic factors and childhood physical and sexual abuse on associations between IPV and health outcomes. Finally, we used data to characterize age at first IPV and health outcomes to construct a cohort design from cross-sectional data.

## Conclusions

Our finding that physical and psychological IPV may produce long-term adverse physical and mental health effects for both women and men has important implications for intervention and prevention efforts. If IPV can be identified early, interventions could be developed to reduce the impact of IPV on mental and physical health status.<sup>66,67</sup>

Screening for IPV victimization among women has been recommended practice for several years now.<sup>68–77</sup> Our data support the growing body of research suggesting that we need to extend screening to include physical and sexual abuse,<sup>8,25,44,78,79</sup> as well as psychological abuse or battering.<sup>44,80–82</sup> The screening recommendations for men victims of IPV are more complicated. As discussed earlier, many men victims may be the primary perpetrator of IPV in the relationship rather than the victim. Hence, current recommendations and guidelines for how to treat and refer female victims of IPV would not apply to males.<sup>68–77</sup> To our knowledge, published treatment and referral recommendations for

males who are IPV victims do not exist. This issue deserves further careful study.

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