2004

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Citation Details

Nicolaidis, C., Curry, M., McFarland, B., & Gerrity, M. (2004). Violence, mental health, and physical symptoms in an academic internal medicine practice. Journal of general internal medicine, 19(8), 819-827.

Violence, Mental Health, and Physical Symptoms in an Academic Internal Medicine Practice

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OBJECTIVE: **To assess how physical and/or sexual intimate partner violence (IPV), child abuse, and community violence relate to long-term mental and physical problems; to examine the overlap between different forms of violence and the impact of experiencing multiple forms of violence.**

DESIGN: **Cross-sectional survey.**

SETTING: **Three general internal medicine practices affiliated with an academic medical center.**

PARTICIPANTS: **English-speaking women aged 25 to 60.**

MEASUREMENTS: **Telephone or in-person interview and chart review.**

RESULTS: **One hundred seventy-four women completed interviews. A majority of participants experienced more than one form of violence. In separate multivariate analyses, each form of violence was associated with depressive symptoms or with at least 6 chronic physical symptoms, after adjustment for demographic factors and substance abuse. The degree of association with health outcomes was similar for each form of violence (odds ratio [OR], 2.4 to 3.9; $P < .003$). The association with chronic physical symptoms remained significant for IPV (OR, 3.3; $P < .002$) and community violence (OR, 3.4; $P < .003$), even after adjustment for depression and posttraumatic stress disorder. There were dose-response relationships between the number of forms of violence experienced and the odds of depressive symptoms and the odds of multiple chronic physical symptoms.**

CONCLUSIONS: **Multiple types of victimizations may contribute to patients' current mental health and physical problems. Research or clinical protocols that only focus on one form of violence may underestimate the complexity of women's experiences and needs.**

KEY WORDS: **intimate partner violence; sexual assault; child abuse; depression; physical symptoms.**
J GEN INTERN MED 2004;19:819–827.

A growing literature documents the negative health consequences of violence against women, but studies often address only one form of violence. For example, survivors of intimate partner violence (IPV) have higher rates of depression, anxiety, and posttraumatic stress disorder (PTSD),[1–7] higher rates of physical symptoms,[8–11] and higher utilization of health services.[4,12–14] Several studies on health effects of IPV do differentiate between physical, sexual, and emotional abuse by an intimate partner,[5,8,9,11] but most do not control for child abuse (CA) or community violence (CV).

Similarly, adult survivors of CA have higher rates of depression, anxiety, PTSD, and personality disorders,[15–17] higher rates of obesity and substance abuse,[18–20] higher rates of somatic complaints,[21] irritable bowel syndrome,[22,23] and higher overall numbers of symptoms and illnesses.[15,16,24,25] Again, most studies of the long-term health consequences of childhood trauma do not adjust for other experiences of violence. One large study found that women abused both as adults and as children had higher rates of mental illness and greater numbers of physical symptoms than those abused only as children or as adults,[15] but did not differentiate between family violence and assaults by strangers, nor between physical and sexual abuse.

Many studies have documented the relationship between sexual or physical assaults and long-term health problems[26–32] but did not consider the relationship between the perpetrator and victim, nor the role of repetitive trauma or of multiple forms of victimization. It is difficult to compare the findings from the IPV, CA, and sexual/physical violence literature due to differences in study participants and methods.

Our objectives were 1) to examine how physical and/or sexual IPV, CA, and CV relate to depression and physical complaints; 2) to examine the overlap between different forms of violence; and 3) to study how a history of multiple forms of violence may impact mental and physical health.

METHODS

Setting and Participants

We conducted a cross-sectional survey of female patients aged 25 to 60 presenting to the 3 general internal medicine clinics affiliated with an academic medical center. We excluded women who did not speak English, could not participate in an interview due to severe physical or mental impairment, or were known to the investigators.

Recruitment and Data Collection

Women aged 25 to 60 presenting for appointments on enrollment days were given a flier describing the project.

Received from the Departments of Medicine (CN, MG), Public Health and Preventive Medicine (CN, BM), and Psychiatry (BM), and School of Nursing (MAC), Oregon Health and Science University; and Department of Medicine (MG), Portland Veterans Affairs Medical Center, Portland, Ore.

Presented at the 26th annual meeting of the Society of General Internal Medicine, Vancouver, British Columbia, May 2003.

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A research assistant approached potentially eligible patients, explained the project, and obtained informed consent. Those who agreed to participate were scheduled for a telephone or in-person interview. Those who declined were given the option of completing a short anonymous questionnaire.

Measures

Interviews consisted of multiple-choice questions. We used the Hopkins Symptom Check List 20[33–35] to assess for depression and the PTSD Checklist 20[36] to assess for PTSD. We asked about 16 chronic physical symptoms (fatigue, widespread pain, pelvic pain, headaches, back pain, jaw pain, chest pain, abdominal pain, rectal pain or sensation of incomplete evacuation, increased bloating or gas, diarrhea or constipation, dizziness, fainting spells, palpitations, severe sensitivity to chemicals, or other pain), each defined as occurring regularly for at least 3 months. We chose symptoms that were common in primary care, frequently unexplained medically, and/or key features of symptom syndromes such as fibromyalgia or irritable bowel syndrome.[37–39] We used a combination of the CAGE questionnaire[40] and the substance abuse questions of the PRIME-MD[41,42] to assess for substance abuse, dichotomizing results based on any "yes" response to the questions related to problem alcohol use or to use of illicit drugs other than marijuana. We used questions modified from the Negative Life Events Questionnaire[43] and the Trauma History Questionnaire[44] to assess for lifetime history of traumatic events, including CV, CA, and IPV. Those who answered yes to the questions about IPV were asked to participate in a second interview including the Conflict Tactic Scale (CTS)[45] and Index of Spouse Abuse.[46] A research assistant reviewed charts to determine how many times chronic physical symptoms and syndromes, depression, PTSD, IPV, CA, or CV were noted in the medical record.

Analysis

We defined a history of physical CV as answering yes to questions about being mugged, stabbed, shot, beaten up, held captive, or kidnapped by someone outside of the family. We defined sexual CV as answering yes to the question about being raped (defined as being forced to have vaginal, oral, or anal sex against one's will) by someone outside of the family.

When assessing CA, we limited answers to those where the perpetrator was a family member or other trusted individual, excluding current or past intimate partners. We defined sexual CA as being forced to have genital, anal, or oral sex at least once. We also included more minor forms of sexual violence if these occurred 10 or more times.

We defined physical and sexual IPV as scoring positive on the Ever Prevalence subscales of the Conflict Tactics Scale (CTS) for "Physical-Severe" or "Sexual-Severe," respectively. We also included women who had 10 or more occurrences of more minor physical or sexual assaults. Though we asked questions about emotional abuse, threats, and controlling behavior, we did not use these as part of the definition of IPV. We chose the cutoff of 10 occurrences because the frequency distributions for questions on IPV and CA had bimodal distributions with a peak at 1 and another peak for greater than 10 occurrences.

Our main outcomes were depressive symptoms and chronic physical symptoms. Women with an HCL-20 score of 1.0 or above were considered to have depressive symptoms in the dichotomous analyses. This score corresponds to "mild depression."[35] We chose to use the median value of 6 physical symptoms as the cutoff for the dichotomous analyses. We assessed two-way associations using t tests and χ^2 tests and used multiple logistic regression to adjust for potential confounders. We initially used all available data on demographic characteristics and substance abuse and eliminated potential confounders in a backward stepwise fashion, using $P > .2$ as our criterion for elimination. In order to be consistent, if a variable was to be included as a potential confounder in any model, we kept it in every model. Thus, all models are adjusted for age, race, personal income, tobacco use, and alcohol use. Further adjustment for household income, educational attainment, or drug use did not alter results. In our primary analyses of the relationship between violence and physical symptoms, we only adjusted for demographic characteristics and substance abuse variables. A second model also adjusted for depression and PTSD.

Our first set of analyses looked at each form of violence individually. The predictor in each of these analyses was a dichotomous variable describing whether or not the participant met criteria for that form of violence. Our second set of analyses explored the relationship between overlapping forms of violence and health. For these analyses, we created a variable with 8 mutually exclusive categories based on the overlap between IPV, CA, and CV. In order to limit the number of possible combinations, no distinction is made between physical and sexual violence. In the final set of analyses, we assessed the role of cumulative violence on health. We considered physical and sexual IPV, CA, and CV as 6 different forms of violence. We used a categorical variable with 7 categories (0 to 6) to represent types of violence experienced.

We performed statistical analyses using STATA software (version 6.0, STATA Corporation, College Station, Tex). The study was approved by the university's human subjects committee.

RESULTS

Participants

Of the 411 women given fliers about the study, 81 women were excluded (27 non-English speaking, 16 mentally impaired, 4 physically impaired, 4 known to investigators, and 30 previously approached to participate).

Table 1. Demographic Characteristics of the 174 Women Who Completed the Interviews

Age: Mean, 43.9; SD, 9.7; Range, 25 to 60		
	n	%
Race		
Black	5	3
Hispanic	5	3
White	151	87
Other	6	3
Mixed	7	4
Education		
Less than HS	9	5
High school	33	19
Some college	78	45
College or more	54	31
Employment status		
Employed, FT	78	45
Employed, PT	19	11
Unemployed	26	15
Disabled	51	24
Annual personal income, $		
<25K	120	69
25K to <40K	32	18
≥40K	20	12
Annual household income, $		
<30K	83	47
30K to <50K	32	18
50K to <75K	26	15
≥75K	31	18

SD, standard deviation; FT, full-time; PT, part-time.

Though 244 of 330 eligible women (74%) consented to the study, 70 women did not present for their scheduled interview. A total of 174 women (71%) completed the interview. Chart data were available on all 244 women. Sixty (70%) of the 86 women who declined to participate in the complete interview answered a short anonymous questionnaire.

Demographic characteristics of the 174 participants are shown in Table 1. Most participants were white and educated. However, participants had relatively low income levels and high rates of disability and unemployment. Health function was considerably lower than national samples.

Compared to responders, women who declined to participate but answered the short anonymous questionnaire were slightly younger (mean age, 40.8 vs 43.9; $P = .0549$) and less likely to be white (71% vs 87%; $P = .008$). Education characteristics and self-reported health status were similar. We performed a chart review on women who consented whether or not they completed the interview. There was no significant difference between women who did and did not complete the interviews in the rates of documentation of tobacco use, depression, PTSD, fibromyalgia, chronic fatigue, irritable bowel syndrome, or chronic pain. There was also no difference in the rates of screening for or disclosure of IPV, CA, or CV.

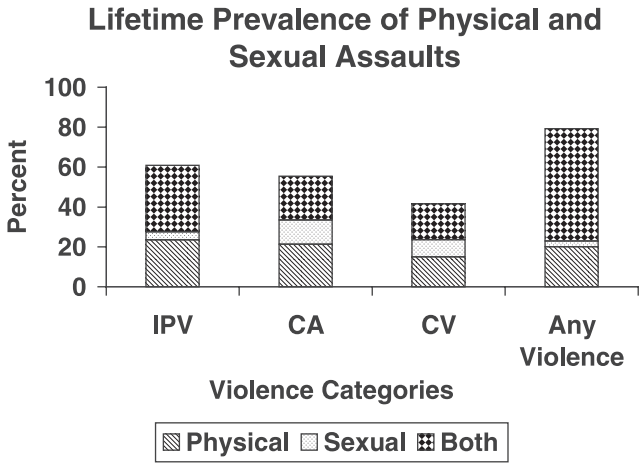

FIGURE 1. Lifetime prevalence of physical and sexual assaults. IPV, intimate partner violence; CA, child abuse; CV, community violence; any violence, any of the above.

Table 2 summarizes answers to questions about violence. As shown in Figure 1, 79% of participants reported that they experienced at least one form of violence. Sixty-one percent met our criteria for a history of IPV, 55% for CA, and 42% for CV. The majority experienced more than one form of violence. Figure 2 shows the overlap between histories of IPV, CA, and CV. Twenty-five percent experienced all three major forms of violence.

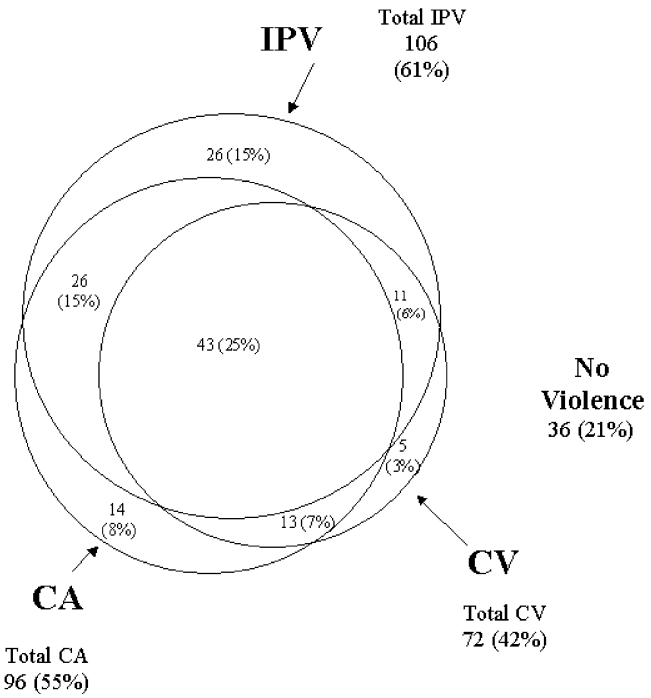

FIGURE 2. Overlap of different forms of violence. Numbers represent number of participants reporting each possible combination of violence, followed by the prevalence rate in parentheses. IPV, intimate partner violence; CA, child abuse; CV, community violence.

Table 2. Violence Characteristics

	Prevalence	Number of Occurrences				Number of Perpetrators			Age at First Occurrence		Age at Last Occurrence		Years Since Last Occurrence	
Violence Question	*n* (%)	1* *n* (%)	2–4* *n* (%)	5–9* *n* (%)	≥10 *n* (%)	1 *n* (%)	2 *n* (%)	≥3 *n* (%)	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)
IPV—physical screen[1]*	117 (68)	27 (23)	24 (21)	9 (8)	57 (49)	74 (63)	27 (23)	16 (14)	14 to 53	23 (7.4)	16 to 56	30 (9.7)	0 to 41	14 (9.0)
IPV—sexual screen[2]*	75 (44)	20 (28)	14 (19)	10 (14)	28 (39)	53 (71)	14 (19)	8 (10)	14 to 51	22 (7.2)	14 to 54	28 (9.6)	0 to 44	16 (10.1)
CA—physical[3]*	75 (44)	3 (4)	6 (8)	7 (9)	59 (79)	45 (60)	22 (29)	8 (11)	0 to 14	4 (3.6)	2 to 39	16 (6.2)	0 to 54	28 (11.8)
CA—rape[4]	36 (21)	1 (4)	5 (19)	3 (11)	18 (67)	15 (42)	11 (31)	10 (28)	0 to 16	7 (4.2)	5 to 36	13 (5.5)	5 to 53	28 (11.4)
CA—molestation[5]*	66 (39)	11 (20)	11 (20)	6 (11)	26 (48)	38 (59)	15 (23)	11 (17)	1 to 16	8 (4.8)	4 to 25	13 (14.3)	2 to 53	30 (11.2)
CA—other sexual[6]*	20 (12)	5 (28)	1 (6)	1 (6)	11 (61)	14 (70)	4 (20)	2 (10)	3 to 17	9 (4.3)	5 to 37	14 (8.0)	9 to 53	30 (12.8)
CV—mugged/held up/ threatened with weapon[7]	46 (27)	33 (72)	9 (20)	3 (7)	1 (2)	N/A	N/A	N/A	6 to 54	23 (10.8)	7 to 54	26 (11.0)	1 to 42	18 (10.5)
CV—stabbed/shot/badly beaten up[8]	21 (12)	13 (62)	5 (24)	2 (10)	1 (5)	N/A	N/A	N/A	8 to 35	20 (6.7)	13 to 40	24 (8.5)	1 to 40	19 (11.8)
CV—held captive/ kidnapped/tortured[9]	18 (10)	14 (82)	3 (18)	0	0	N/A	N/A	N/A	4 to 35	17 (7.8)	7 to 35	19 (6.4)	7 to 42	24 (11.4)
CV—raped[10]	46 (27)	27 (60)	13 (29)	5 (11)	0	N/A	N/A	N/A	5 to 47	19 (7.3)	7 to 47	23 (8.2)	0 to 49	22 (12.6)

** Participants who responded that they had experienced less than 10 instances of physical or sexual IPV on the screening questions were only included in the final definition of IPV if the assault was categorized as "severe" on the Conflict Tactics Scale. Participants who had experienced less than 10 occurrences of physical child abuse, childhood molestation, or other childhood sexual assault were not included in the final definition of child abuse.*

Rows represent answers to individual violence-related questions, not final violence categories. Each section was prefaced by introduction delineating differences between IPV, CA, and CV.

1. "Have you ever been pushed, hit, slapped, kicked, or hurt in any way by an intimate partner?"

2. "Has an intimate partner ever forced you to have sex against your will, or forced you into sexual acts that you did not want to engage in?"

3. "As a child, were you ever physically abused (spanked, whipped, or hit in any amount that you thought was abuse) by a family member or other trusted individual?"

4. "Before you were 16 years old, did a family member or other trusted individual force you to have genital, anal, or oral sex?"

5. "Before you were 16 years old, did a family member or other trusted individual forcibly touch your private parts or force you to touch their private parts?"

6. "Before you were 16 years old, did a family member or other trusted individual otherwise sexually abuse you, for example by exposing him or herself to you or forcing you to pose for sexual pictures?"

7. "Have you been mugged, held up, or threatened with a weapon?"

8. "Have you been stabbed, shot, or badly beaten up?"

9. "Have you been held captive, tortured, or kidnapped?"

10. "Have you been raped (meaning that someone made you have vaginal, oral, or anal sex against your will)?"

IPV, intimate partner violence; CA, child abuse; CV, community violence; n, *number responding yes; SD, standard deviation.*

Table 3. Associations Between Various Types of Violence, Depression, and Chronic Physical Symptoms

Type of Violence		Depressive Symptoms			Six or More Physical Symptoms			
	Prev. of Violence *n* (%)	Prev. in Those with Violence *n* (%)	Prev. in Those Without Violence *n* (%)	Adj. OR (*P* Value)	Pre. in Those with Violence *n* (%)	Prev. in Those Without Violence *n* (%)	Model 1 Adj. OR (*P* Value)	Model 2 Adj. OR (*P* Value)
Physical IPV	99 (56)	67 (68)	32 (43)	2.6 (.007)*	65 (66)	25 (33)	3.6 (.000)*	3.1 (.003)*
Sexual IPV	75 (43)	49 (75)	59 (54)	3.2 (.003)*	45 (69)	45 (41)	3.0 (.003)*	2.3 (.041)*
Any IPV	106 (61)	72 (68)	27 (40)	3.0 (.003)*	69 (65)	21 (31)	3.9 (.000)*	3.3 (.002)*
Physical CA	75 (44)	53 (71)	44 (45)	2.4 (.016)*	45 (60)	44 (45)	1.6 (0.172)	1.1 (.762)
Sexual CA	59 (34)	70 (73)	55 (48)	2.4 (.023)*	41 (69)	49 (43)	2.5 (.014)*	2.0 (.103)
Any CA	96 (55)	50 (72)	29 (37)	3.7 (.000)*	60 (63)	30 (38)	2.4 (.015)*	1.5 (.291)
Physical CV	57 (33)	43 (75)	55 (47)	2.9 (.010)*	39 (64)	50 (43)	2.7 (.012)*	2.3 (.044)*
Sexual CV	46 (27)	35 (76)	61 (49)	2.5 (.030)*	34 (74)	52 (42)	3.2 (.006)*	3.5 (.007)*
Any CV	72 (42)	54 (75)	44 (44)	3.1 (.004)*	51 (71)	38 (38)	3.9 (.001)*	3.4 (.003)*
Any physical	133 (76)	87 (65)	12 (29)	3.7 (.002)*	81 (61)	9 (22)	5.3 (.000)*	5.3 (.001)*
Any sexual	103 (59)	74 (72)	25 (35)	3.8 (.000)*	67 (65)	23 (32)	3.3 (.001)*	3.3 (.002)*
Any violence	138 (79)	90 (65)	9 (25)	4.4 (.001)*	82 (59)	8 (22)	5.0 (.001)*	4.8 (.003)*

All models are adjusted for age, race, personal income, tobacco use, and alcohol use. Further adjustment for household income, educational attainment, or drug use did not alter results. Model 2 further adjusts for depression score and presence or absence of PTSD symptoms.
IPV, intimate partner violence; CA, child abuse; CV, community violence; n, *number of participants; Prev., prevalence; Adj. OR, adjusted odds ratios; PTSD, posttraumatic stress syndrome.*
** Statistically significant associations.*

Violence and Health

Table 3 shows the associations between each form of violence, depression, and physical symptoms. For each form of violence, women who reported experiencing violence had significantly higher depression scores than those who did not (data not shown; $P < .01$). The association between each form of violence and the presence of at least mild depressive symptoms remained significant after adjusting for demographic factors and substance abuse. Odds ratios for the magnitude of the association were relatively similar, ranging from 2.4 to 3.7, for the individual forms of violence, and increasing to 4.4 for the analysis looking at any violence.

For each analysis, women who reported experiencing a form of violence complained of a greater number of chronic physical symptoms than those who did not (data not shown; $P < .02$). All forms of violence, other than physical CA, raised women's odds of having 6 or more physical symptoms, even after adjustment for demographic factors and substance abuse (model 1). Odds ratios were similar, ranging from 2.4 to 3.9 for the individual forms of violence and increasing to 4.8 in the analysis looking at any violence. With the exception of CA (physical, sexual, or any), there were significant associations between each form of violence and the risk of having 6 or more chronic physical symptoms, above and beyond what could be attributed to depression or PTSD (model 2).

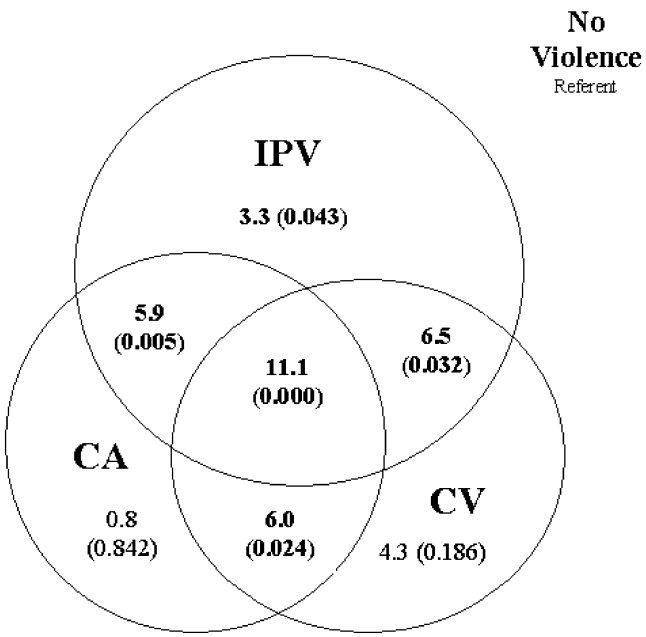

FIGURE 3. Adjusted odds ratios of 6 or more physical symptoms by overlapping forms of violence. Number in each area represents odds ratio of having 6 or more physical symptoms after adjustment for age, race, income, tobacco use, and alcohol use. Further adjustment for household income, educational attainment, or drug use did not alter results. Numbers in parentheses represent *P* value. The group of women with no history of violence is used as the reference category. IPV, intimate partner violence; CA, child abuse; CV, community violence.

Multiple Forms of Violence and Health

Figure 3 shows how the overlap of different forms of violence relates to physical symptoms. There was a

Table 4. Dose-Response Relationship Between Number of Forms of Violence and Mental and Physical Symptoms

Number of Forms of violence	Prevalence	Depressive Symptoms		≥6 Physical Symptoms (Model 1)		≥6 Physical Symptoms (Model 2)	
	n (%)	Adj. OR	*P* Value	Adj. OR	*P* Value	Adj. OR	*P* Value
0	36 (21)	Ref.		Ref.		Ref.	
1	30 (17)	1.6	.395	2.6	.106	2.4	.191
2	33 (19)	3.6*	.021*	3.7*	.020*	3.2	.061
3	29 (17)	6.8*	.003*	7.1*	.002*	4.4*	.039*
4	22 (13)	7.9*	.006*	3.2	.079	2.6	.195
5	14 (8)	6.9*	.016*	15.0*	.003*	9.2*	.023*
6	10 (6)	10.2*	.012*	30.2*	.003*	30.2*	.006*

Predictor is the number of different forms of violence reported, counted as physical intimate partner violence (IPV), sexual IPV, physical child abuse (CA), sexual child abuse, physical community violence (CV), and sexual violence (SV). All models are adjusted for age, race, personal income, tobacco use, and alcohol use. Further adjustment for household income, educational attainment, or drug use did not alter results. Model 2 further adjusts for depression score and presence or absence of posttraumatic stress syndrome symptoms.
Adj. OR, adjusted odds ratio; n, *number of participants.*
* *Statistically significant associations.*

significant association between a history of IPV alone and the risk of having 6 or more chronic physical symptoms, with an adjusted odds ratio of 3.3 ($P < .05$). The adjusted odds ratios increased to 5.9 to 6.5 ($P < .05$) for the three groups of women who had suffered any combination of two of the three major forms of violence, and further increased to 11.1 ($P < .001$) for the group of women who experienced all three forms of violence (IPV, CA, and CV). There was no clear pattern showing that a particular form of violence in combination with others led to a greater association with physical symptoms. An analysis using depressive symptoms as the outcome also found significant associations for all four groups of women with any particular combination of two or three forms of violence as compared to the group of women without a history of violence, but the gradation in odds ratios was less clear (data not shown).

As shown in Table 4, there was a strong dose-response relationship in the magnitude of the association between the number of forms of violence and either depressive symptoms or physical symptoms, after adjustment for demographic and substance abuse factors (model 1). The dose response in the association with physical symptoms remained similar even after adjusting for depression and PTSD (model 2).

DISCUSSION

When studying or treating violence against women, patients are often considered survivors of a particular form of trauma. Our study, however, illustrates the importance of looking at the full picture of violence. The majority of participants (53%) reported experiencing multiple forms of violence. While the magnitude of association between violence and health outcomes was similar regardless of the type of violence, the strong dose-response relationship between depressive or physical symptoms and the number of forms of violence suggests the need to examine the cumulative impact of violence on health.

This study has several limitations including modest response rate. Women who recognized an association between their traumatic experiences and health may have been more likely to participate, biasing findings toward greater association. Moreover, we had few nonwhite participants. Thus, it may not be possible to generalize our results to women of color. As the sample size is rather small, no conclusions can be drawn about undetected associations. We did not have adequate power to assess for associations between different forms of violence and individual physical symptoms. Larger studies have found associations between IPV and a host of physical symptoms or illnesses.[8,9] Given the great breadth of these symptoms and illnesses, we feel that the presence of multiple physical symptoms may be a better clue to victimizations than any particular clinical symptom. Similarly, our study was not powered to make distinctions based on severity and frequency of violence or time since abuse. Less than 5% of participants disclosed that they were experiencing current violence (i.e., within the past year). Limiting the analyses to women with past violence alone did not change the results. It is possible that some of the events described did not represent the full picture of what occurred, since we only used self-report data. We used very strict criteria in our definition of violence, excluding events where there was only emotional abuse or low-level assaults, to control for differences in what women may consider abusive. As a cross-sectional survey, this study can only examine associations, not causations. We cannot determine whether the violence described by participants led to their health problems, or whether it is simply a marker for other unmeasured circumstances that cause depression or chronic physical concerns.

Despite these limitations, there are important findings and implications. We found a higher than expected lifetime prevalence of violence. It is possible, given our modest response rate, that our sample was biased toward women with a history of violence. However, even if we assumed that all nonresponders had never experienced violence, the

prevalence in our population would remain high. The rates of violence in our study are higher than those found in community samples[47–51] or studies of primary care populations drawn from health maintenance organizations[4,52] or community-based clinics,[9,15] but are similar to other studies drawn from inner-city, public hospitals or academic medical centers.[53–55] Those study populations have much greater racial diversity and lower educational levels than ours. The high rates of violence and disability and the low incomes and health function in our mostly white, well-educated patients highlight the challenges faced by academic medical centers and their patients, even in less racially diverse cities.

Our secondary analyses further the literature by showing that the association between IPV or CV and physical symptoms persists even after adjustment for depression and PTSD. This finding supports the notion that depression and PTSD should be seen as important comorbid illnesses that influence the health of violence survivors, but do not fully explain physical symptoms.

One can speculate as to why or how violence increases the risk of depression or physical symptoms. Only 3% of women in our study had experienced CV alone. Perpetrators of family violence classically berate their victims, isolate them socially, control their activities, and alternate between extreme displays of love and abuse.[56,57] Cognitive-behavioral theory attributes depression to maladaptive thoughts and behaviors.[58,59] A victim may internalize negative beliefs about herself, which can then lead to depressive thoughts. The social isolation and control may cause her to adopt behaviors that also increase risk for depression. In our study, the number of different forms of violence was most associated with current risk of depression. It may be that experiencing violence from multiple different perpetrators and in multiple different situations may further reinforce negative beliefs that had been instilled in a victim by an abusive family member or partner.

Less is known as to why violence is associated with chronic physical symptoms, but one can imagine that the nature of abuse may contribute to the development of somatic complaints. Women are likely to have been told by their abuser that they are "crazy" or that the problem is "all in [their] head." Moreover, survivors often feel that providers and others blame them for choosing to stay in an abusive relationship.[56] An abuse survivor may be more hesitant to accept a mental health diagnosis, may interpret it as proof that her provider thinks "there is something wrong" with her for getting into an abusive relationship, or may be more likely to experience mental distress as physical symptoms.

Alternatively, it is possible that violence causes lasting changes in the neuroendocrine system that chemically mediate an increase in symptoms. Though evidence is emerging for neuroendocrine abnormalities in patients with chronic mental or physical distress,[60–67] little is known about the mechanisms linking violence to such changes.

Studies that only assess one form of violence may make inferences that are confounded by participants' other violent experiences. Similarly, studies that lump all violence together in a dichotomous fashion may be missing the importance of multiple victimizations. Researchers interested in the relationship between violence and health need to consider the cumulative effect of many different forms of violence.

Clinicians need to be aware that a patient may not simply be a survivor of one form of violence. Most efforts to train clinicians focus on a specific form of violence.[56,68–70] However, clinicians need to take into account the complexity of women's experiences and needs. Conversely, when seeing a patient with depressive symptoms or multiple physical complaints, clinicians should consider the possibility that a lifetime of violence may be diminishing her health and should be aware of the repetitive nature of violence and the increased risk of future victimization.

Further research is needed to understand the relationship between violence and health, to test the effectiveness of interventions meant to decrease the impact of violence, and to explore ways to prevent future violence.

This work was funded by a grant from the Medical Research Foundation of Oregon (PI: Nicolaidis).

We greatly appreciate the work of Regan Duffy in recruiting participants and conducting interviews. We would like to thank Sarah Zwehl-Burke, MD, Lauren Shaw, Don Austin, MD, PhD, and Cari Gandrud for their contributions to grant writing and data collection, and Jacquelyn Campbell, RN, PhD, for her suggestions regarding data analysis.

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