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A Comparison of Risk Factors for Intimate Partner Violence–Related Injury Across Two National Surveys on Violence Against Women

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This study compares risk factors for intimate partner violence–related injury across two national data sources on violence against women, the Canadian Violence Against Women Survey and the National Violence Against Women Survey in the United States. After equating the data sets as much as possible on the types of violence experienced and risk factors, the authors determined which risk factors in each data source predicted injury and compared the magnitudes of associations between risk factors and injury across the data sets. The article presents results on bivariate and multivariate findings, model fit across the data sets, and statistical comparisons of findings across the data sets. Obtaining convergent findings across data sources on risk factors for injury will allow public health practitioners to intervene more effectively with women at risk for experiencing violence-related injuries perpetrated by spouses.

Keywords: *intimate partner violence; injury; risk factors*

*In the August 2001 (Volume 7, Number 8) issue of *Violence Against Women*, we published an article that examined risk factors for injury among women physically assaulted by current or former spouses (Thompson, Saltzman, & Johnson, 2001). In that investigation, we used the Canadian Violence Against Women Survey (CVAWS) as our data source. We reported that at the time of our study, the CVAWS was the most recent large data set available for examining our research question. We also reported that after our*

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study was conducted, data from the National Violence Against Women Survey (NVAWS) in the United States became available, and we proposed to conduct similar analyses with NVAWS data to determine if the results replicated those from the CVAWS. Thus, the purpose of the current investigation is to compare risk factors for injury across two data sources, the CVAWS and the NVAWS.

As we have previously delineated (Thompson et al., 2001), intimate partner violence is a common source of fatal and nonfatal injuries to women in both the United States and Canada (Canadian Centre for Justice Statistics, 1997; Federal Bureau of Investigation, 2001; Rand & Strom, 1997). The assessment of risk factors for intimate partner violence-related injury is an important area of research because injuries from intimate partner violence are prevalent (Grisso, Schwarz, Miles, & Holmes, 1996; Schnitzer & Runyan, 1995), may increase in severity over time (Follingstad, Hause, Rutledge, & Polek, 1992), and are preventable (Dannenberg, Baker, & Li, 1994). Furthermore, the ability to predict which women are most at risk of being physically injured in intimate partner violence-related physical assaults is necessary for focusing intervention and prevention strategies (Mercy & O'Carroll, 1988).

The purposes of the current study are the following: (a) to determine the risk factors for injury that could be studied in both the CVAWS and the NVAWS, (b) to determine which risk factors predicted injury occurrence in each data source, (c) to compare the magnitudes of associations between risk factors and injury across the CVAWS and the NVAWS, and (d) to discuss whether any differences in findings may be related to methodological differences.

We developed hypotheses by starting with our findings from the earlier CVAWS analysis (Thompson et al., 2001). In that analysis, we found that experiencing violence before the marriage or common-law union, having a partner who was drinking, having children witness the violence, experiencing more than one violent episode by the same partner, fearing one's life was in danger, and experiencing high levels of emotional abuse were related to an increased risk of injuries. Thus, in the current analysis, we hypothesized that in both data sets, these same variables would be related to an increased risk of injury among women physically assaulted by current spouses. We did not hypothesize any

differences in the nature or magnitude of these associations between the CVAWS and the NVAWS.

METHOD AND ANALYSIS

DATA SOURCES

NVAWS

The NVAWS was a national telephone survey conducted in the United States about experiences with violence. The survey was sponsored by the National Institute of Justice and the Centers for Disease Control and Prevention and was conducted by the Center for Policy Research from November 1995 to May 1996. The nationally representative sample of 8,000 women and 8,000 men was derived using random-digit dialing among households with telephones in all 50 states and the District of Columbia. We only included women for this analysis, and all were age 18 and older. In households with more than one eligible adult female, the adult woman with the most recent birthday was selected to participate in the survey. To obtain a sample of 8,000 women, 17,788 households were contacted. Of those contacted, 12,959 included an eligible participant, and of these women, 61.7% agreed to be interviewed and completed the survey.

All interviewers of female respondents were women. Interviewers were trained on survey content and on ways to respond to victims' disclosures of violence. Respondents who became distressed during the interview were provided with a list of rape crisis and domestic violence hotline numbers across the country. Participation in the survey was voluntary, and confidentiality was assured. No personal identifiers were included in the database. At the beginning of the interview, respondents were provided with a toll-free telephone number that they could use to call back to verify the legitimacy of the survey, to reschedule an interview, or to resume the interview in cases where they had to hang up suddenly. A Spanish-language version of the survey was used for Spanish-speaking respondents. For more information on the sampling procedures, see Tjaden and Thoennes (2000).

CVAWS

The CVAWS was a national telephone survey conducted in Canada about women's experiences with male violence. The survey was conducted by Statistics Canada between February and June 1993. The nationally representative sample was selected using random-digit dialing. Prior to sampling, each of the 10 Canadian provinces was divided into geographic strata. Generally, one stratum represented census metropolitan areas and another represented the non-census metropolitan areas. A random sample of telephone numbers was generated for each geographic stratum. The sample consisted of women age 18 and older. In households with more than one eligible adult female, only one woman was randomly selected to complete the interview. Of the 22,319 households contacted, 19,309 included an eligible participant. Of these women, 63.7% agreed to be interviewed and completed the survey. The final sample included 12,300 women.

Interviewers, all of whom were women, were trained in telephone interviewing, survey design procedures, and responding to victims' trauma. Interviewers were also equipped with a listing of support services for victims of domestic violence and sexual assault that they could offer to respondents at any time. Participation in the survey was voluntary, and confidentiality was assured. At the outset of the interview, every respondent was provided with a toll-free telephone number that she could use to call back to resume the interview in the event that she had to hang up suddenly, wanted to verify the survey, add to her responses, or reschedule an interview. No call backs were made by interviewers, which gave respondents control over their participation. For more information on sampling procedures, see Statistics Canada (1994).

SUBSETTING AND EQUATING THE SAMPLES

Because we were interested in comparing risk factors for injury across the NVAWS and CVAWS samples, we first needed to equate the samples as much as possible. This entailed excluding women physically assaulted by boyfriends, because many of the risk factors we examined were only asked in the CVAWS of

women reporting spousal violence. Also, we excluded women assaulted by former spouses because many of the risk factors we examined were only asked in the NVAWS of women with current partners. Women with common-law spouses were included. Common-law status was assessed in the CVAWS with the question "Are you living with a man in a common-law relationship?" and in the NVAWS by asking women the status of their current relationship (e.g., married, divorced).

We also equated the samples on the types of violence experienced. Because the NVAWS and the CVAWS did not ask the same questions to assess for physical violence, we excluded the nonoverlapping items. This entailed deleting three items from the CVAWS, including "threatened to hit you with his fist or anything else that could hurt you" and two items that both asked "Has he ever been violent toward you in any other way?" We also deleted one item from the NVAWS, "pulling of hair," because it was not assessed in the CVAWS. Although both the CVAWS and the NVAWS assessed for sexual assaults perpetrated by spouses, the questions were too different to permit meaningful comparative analyses. Thus, our sample did not include women who had been sexually assaulted by a spouse unless they also reported a history of physical assault by a spouse.

In the CVAWS, the questions assessing partner violence were preceded with the statements, "We are particularly interested in learning more about women's experiences of violence in their homes. I'd like you to tell me if your husband has ever done any of the following to you. This includes incidents that may have occurred while you were dating." In the NVAWS, the questions assessed physical victimization experienced as an adult by any type of perpetrator. For respondents who answered affirmatively to any of the questions, detailed information, including victim-perpetrator relationship, was collected on each event. The questions on physical violence were preceded with the statement, "Not counting any incidents you've already mentioned, after you became an adult did any other adult, male or female, ever . . ." The exact wording of the items used to assess for physical violence are listed in Table 1.

In sum, the final samples included women who had experienced physical violence at the hands of a current male spouse. Our final samples consisted of 281 women from the NVAWS who

TABLE 1
Items Used to Assess Physical Violence in the Canadian Violence Against Women Survey (CVAWS) and
National Violence Against Women Survey (NVAWS)

CVAWS	NVAWS
Has he ever thrown anything at you that could hurt you?	Throw something at you that could hurt you?
Has he ever pushed, grabbed, or shoved you?	Push, grab, or shove you?
Has he ever slapped you?	Slap or hit you?
Has he ever kicked, bit, or hit you with his fist?	Kick or bite you?
Has he ever hit you with something that could hurt you?	Hit you with some object?
Has he ever beaten you up?	Beat you up?
Has he ever choked you?	Choke or attempt to drown you?
Has he ever threatened to or used a gun or knife on you?	Threaten you with a gun?
	Threaten you with a knife or other weapon besides a gun?
	Use a gun on you?
	Use a knife or other weapon on you besides a gun?

TABLE 2
Demographic Descriptives (Unweighted) Among Women Physically Assaulted by Male Current Spouses From the Canadian Violence Against Women (CVAWS) and National Violence Against Women Survey (NVAWS)

	CVAWS (n = 627)	NVAWS (n = 281)
Age		
<i>M</i>	42.43	41.71
<i>SD</i>	12.25	13.71
Employed (% yes)	70.5	62.6
Education		
Less than high school (%)	27.7	12.5
High school diploma or more (%)	72.3	87.5
Race		
White (%)	NA	77.8
Black (%)	NA	8.4
Other (%)	NA	13.8

NOTE: NA = data not available.

reported being physically assaulted by current male spouses (3.5% of the NVAWS total sample) and 627 women from the CVAWS who reported being physically assaulted by current male spouses (5.1% of the CVAWS total sample). Demographics of the two samples are presented in Table 2. As can be seen, the samples were similar in age, but the women in the CVAWS were more likely to be employed and less likely to have a high school diploma. The CVAWS did not include information on race, so comparisons on race were not possible.

MEASURES

Because our interest was in comparing risk factors for injury across the NVAWS and CVAWS samples, the risk factors and the assessment of these risk factors needed to be as similar as possible across the two samples. Thus, we excluded some variables because they either were not asked or were not asked in an equivalent manner in both data sets. For example, we did not include a risk factor variable assessing exposure to parental violence as a child because this variable was assessed in the CVAWS but not in the NVAWS. The final set of examined risk factors included the following six variables: timing of the onset of violence, whether the perpetrator was drinking, frequency of abuse, whether children witnessed the violence, emotional abuse, and fear of injury

TABLE 3
Descriptive Data (Unweighted) for Women Physically Assaulted by Male Current Spouses on Study Variables From the Canadian Violence Against Women Survey (CVAWS) and National Violence Against Women Survey (NVAWS)

	CVAWS (n = 627)	NVAWS (n = 281)
Injury (% yes)	23.6	26.7
Onset of violence before union (% yes)	17.1	14.9
Perpetrator drinking (% yes)	48.3	37.7
Other abuse by same perpetrator (%)		
One incident	59.0	31.3
Two to five incidents	22.4	43.8
Six or more incidents	18.6	16.4
Children witnessed violence (% yes)	33.2	40.2
Emotional abuse (%)		
None	52.8	50.5
Low	22.6	19.6
Moderate	18.0	23.8
High	6.7	6.0
Feared injury or death (% yes)	10.7	22.3

or death. The frequency distributions of the outcome and risk factor variables in the two data sets are presented in Table 3.

Before describing the measures that we used, it is important to note that most of the risk factors assessed in the NVAWS were incident specific (i.e., the measure of injury and risk factors all pertained to one specific event), but the risk factors assessed in the CVAWS were only specific to the same partner but not to a particular incident. More than half of the CVAWS sample (59%) experienced only one incident, and so, we know that the risk factors assessed applied to the same event as the injury outcome assessed. But for the remaining 41% of the CVAWS sample, the risk factors did not necessarily apply to the same incident as the one for which the injury outcome was assessed. Specifically, injury was incident specific in the NVAWS but not in the CVAWS, onset of violence was not an incident-specific variable (i.e., did not make sense to conceptualize as incident specific), perpetrator's alcohol use was incident specific in the NVAWS but not in the CVAWS, abuse history was not an incident-specific variable, whether children witnessed the violence was not incident specific in either data set, emotional abuse was not an incident-specific variable, and feared injury or death was incident specific in the NVAWS but not in the CVAWS.

Outcome Variable

Our outcome variable was whether a woman sustained a physical injury, assessed by asking women in the CVAWS "Were you (ever) physically hurt in any way?" and in the NVAWS "Were you physically injured during this incident?"

Predictors of Injury Risk

Onset of violence. Whether the abuse began before the respondent's marriage or common-law union was a dichotomous variable (1 = yes, 0 = no). This variable was assessed in the CVAWS with the question "Did this happen before you were married/living in a common-law relationship?" and in the NVAWS with two questions, "How long have you been married?" and "When was the first time this happened?"

Perpetrator's alcohol use. Alcohol involvement reflected whether the perpetrator had been drinking (1 = yes, 0 = no). This variable was assessed in the CVAWS with the question "Was he (usually) drinking at the time?" and in the NVAWS with the question "Was he using alcohol at the time of this incident?"

Other abuse by the same perpetrator. Abuse experienced with the same partner was assessed by asking women in the CVAWS "How many different times did these things happen?" and in the NVAWS "How many different times has he done this to you?" This variable was recoded to have three categories: no other abuse (one incident), other abuse (two to five incidents), and frequent other abuse (six or more incidents).

Children witnessed. Whether children witnessed the violence (1 = yes, 0 = no or no children living with her) was assessed by asking women in the CVAWS "Did any of your children ever witness any of the incidents?" and in the NVAWS "Did any of the children living with you ever witness the violence?"

Emotional abuse. Emotional abuse was assessed with five items. In the CVAWS, the items were "He calls you names to put you down or make you feel bad," "He is jealous and doesn't want you

to talk with other men," "He insists on knowing who you are with and where you are at all times," "He prevents you from knowing about or having access to the family income even if you ask," and "He tries to limit your contact with family or friends." Although the NVAWS asked 13 questions to assess for emotional abuse, we only used the five items that were also used in the CVAWS. The exact wording for these items was as follows: Thinking about your current husband/partner, would you say he "calls you names or puts you down in front of others"; "is jealous or possessive"; "insists on knowing who you are with at all times"; "prevents you from knowing about or having access to the family income, even if you ask"; and "tries to limit your contact with family or friends?" We recoded this variable into four levels: no emotional abuse, low emotional abuse (positive response to one item), moderate emotional abuse (positive responses to two or three items), and high emotional abuse (positive responses to four or five items).

Fear injury or death. Fearing injury or death was a dichotomous variable (1 = yes, 0 = no). In the CVAWS, this variable was assessed with the question, "Did you ever fear that your life was in danger?" In the NVAWS, this variable was assessed with the question, "Did you believe you or someone close to you would be seriously harmed or killed during this incident?"

DATA ANALYTIC STRATEGY

We used logistic regression as our statistical technique because our outcome measure was dichotomous. Data in both data sets were weighted to account for the fact that there may have been more than one eligible adult female in a household. The comparison group in both sets of analyses was women who had been victimized by spouses but not physically injured. We first conducted bivariate logistic regression analyses to test the associations of the six predictors on risk of injury. Woolf's test for heterogeneity of two odds ratios (Hosmer & Lemeshow, 1989) was used to test the significance of the differences between the crude odds ratios obtained from the CVAWS data and the NVAWS data. We then conducted two sets of parallel multivariate logistic regression analyses to examine the unique effects of the predictors on risk of

injury. Again, Woolf's test for heterogeneity of two odds ratios (Hosmer, & Lemeshow, 1989) was used to test the significance of the differences between the adjusted odds ratios obtained from the analyses with the CVAWS data and the analyses with the NVAWS data. Finally, we compared the model fit of the two multivariate models.

RESULTS

BIVARIATE LOGISTIC REGRESSION MODELS PREDICTING INJURY RISK

As shown in Table 4, the risk factors that significantly predicted the odds of incurring a physical injury in the CVAWS also significantly predicted the odds of incurring an injury in the NVAWS, with the exception of emotional abuse. Specifically, in both data sets, a woman's odds of injury increased if children witnessed any of the violence, if the perpetrator had been drinking, if she had been victimized by the same partner on another occasion, and if she reported fearing injury or death. Whether the abuse began prior to the union did not significantly predict risk of injury in either data set. Two differences emerged across the two data sets. Whereas experiencing six or more incidents of abuse by the same partner significantly predicted risk of injury in both data sets, experiencing two to five incidents increased the risk of injury only in the CVAWS. Second, whereas moderate and high levels of emotional abuse predicted risk of injury in the CVAWS, emotional abuse was not predictive of injury risk in the NVAWS.

Woolf's test for heterogeneity of two odds ratios (Hosmer & Lemeshow, 1989) was used to test the significance of the differences between the odds ratios for each variable across the two data sets. Two risk factors, other abuse by same perpetrator and feared injury or death, were more strongly associated with risk of injuries in the CVAWS than in the NVAWS. Although in both data sets women who had experienced six or more incidents of abuse by the same partner were at increased risk of injury compared to women who had not experienced any other abuse by the same partner, the magnitude of this effect was greater in the CVAWS than in the NVAWS, $\chi^2(1, N = 908) = 4.75, p < .05$. Similarly,

TABLE 4
Crude Odds Ratios (CORs) and 95% Confidence Intervals (CIs) for Modeling Injury Among Females Physically Assaulted by Male Current Spouses by Study Variables in Bivariate Logistic Regression Equations, Canadian Violence Against Women Survey (CVAWS) and National Violence Against Women Survey (NVAWS)

<i>Predictor Variable</i>	<i>CVAWS</i>		<i>NVAWS</i>		χ^2 <i>Testing Difference in CORs</i>
	<i>COR</i>	<i>95% CI</i>	<i>COR</i>	<i>95% CI</i>	
Onset of violence before union					
No	1.00		1.00		
Yes	1.20	0.71, 2.02	1.40	0.69, 2.84	0.12
Children witnessed violence					
No	1.00		1.00		
Yes	3.46	2.26, 5.29 ^a	3.07	1.85, 5.09 ^a	0.13
Perpetrator drinking					
No	1.00		1.00		
Yes	1.87	1.23, 2.83 ^a	2.87	1.14, 3.07 ^a	1.68
Other abuse by same perpetrator					
One incident	1.00		1.00		
Two to five incidents	2.71	1.56, 4.71 ^a	1.29	0.72, 2.30	3.29
Six or more incidents	14.51	8.41, 25.04 ^a	5.43	2.71, 10.89 ^a	4.75 ^b
Feared injury or death					
No	1.00		1.00		
Yes	12.86	6.78, 24.40 ^a	3.17	1.72, 5.86 ^a	9.59 ^b
Emotional abuse					
None	1.00		1.00		
Low	1.57	0.93, 2.64	1.00	0.51, 1.94	1.09
Moderate	3.20	1.88, 5.45 ^a	1.47	0.80, 2.69	3.57
High	4.40	2.12, 9.15 ^a	1.88	0.72, 4.90	1.91

a. 95% confidence interval does not include 1.

b. *p* value for $\chi^2 < .05$.

increased risk of experiencing injuries in both the CVAWS and the NVAWS, the magnitude of effect for this variable on risk of injury was greater in the CVAWS than in the NVAWS, $\chi^2(1, N = 908) = 9.59, p < .01$.

Although experiencing two to five incidents of abuse by the same partner increased the risk of injury in the CVAWS but not in the NVAWS, the magnitudes of the crude odds ratios were not significantly different across the two data sets. Also, whereas moderate and high levels of emotional abuse predicted risk of injury in the CVAWS but not in the NVAWS, the magnitudes of these crude odds ratios were not significantly different across the two data sets.

MULTIVARIATE LOGISTIC REGRESSION MODELS PREDICTING INJURY RISK

Next, we conducted two parallel multivariate logistic regression models to determine which risk factors were unique contributors to injury risk across the two data sets. Results are presented in Table 5 and indicate that only two risk factors predicted the risk of injury across both data sets. Specifically, a woman's odds of injury increased if the perpetrator had been drinking and if she had been victimized six or more times by the same partner. Whether the abuse began prior to the union, low and moderate levels of emotional abuse, and experiencing two to five incidents of abuse by the same partner were not predictive of injury risk in either data set. Three differences emerged across the two data sets. Whether children witnessed any of the violence and high levels of emotional abuse were predictive of injury risk only in the NVAWS, and whether a woman feared injury or death was predictive of injury risk only in the CVAWS.

Again, Woolf's test for heterogeneity of two odds ratios (Hosmer & Lemeshow, 1989) was used to test the significance of the differences between the odds ratios for each variable across the two data sets. The magnitudes of the odds ratios obtained for feared injury or death were significantly different across the two data sets. Not only was this variable significant in the CVAWS but not in the NVAWS, but also the magnitude of the association between feared injury or death and injury risk was significantly greater in the CVAWS than in the NVAWS, $\chi^2(1, N = 908) =$

TABLE 5
Adjusted Odds Ratios (AORs)^a and 95% Confidence Intervals (CIs) for Modeling Injury Among Women Physically Assaulted by Male Current Spouses by Study Variables in Multivariate Logistic Regression Equations, Canadian Violence Against Women (CVAWS) and National Violence Against Women (NVAWS)

<i>Predictor Variable</i>	<i>CVAWS</i>		<i>NVAWS</i>		χ^2 <i>Testing Difference in AORs</i>
	<i>AOR</i>	<i>95% CI</i>	<i>AOR</i>	<i>95% CI</i>	
Onset of violence before union					
No	1.00		1.00		
Yes	0.76	0.37, 1.56	1.36	0.60, 3.12	1.09
Children witnessed violence					
No	1.00		1.00		
Yes	1.53	0.91, 2.59	2.04	1.02, 4.07 ^b	0.42
Perpetrator drinking					
No	1.00		1.00		
Yes	1.72	1.05, 2.80 ^b	2.58	1.31, 5.07 ^b	0.90
Other abuse by same perpetrator					
One incident	1.00		1.00		
Two to five incidents	1.81	0.99, 3.33	1.61	0.75, 3.44	0.56
Six or more incidents	7.32	3.71, 14.43 ^b	4.60	1.76, 12.02 ^b	0.60
Feared injury or death					
No	1.00		1.00		
Yes	4.32	2.01, 9.29 ^b	1.37	0.58, 3.22	3.84 ^c
Emotional abuse					
None	1.00		1.00		
Low	1.20	0.65, 2.20	2.21	0.93, 5.26	1.28
Moderate	1.03	0.51, 2.07	2.19	0.92, 5.18	1.77
High	0.68	0.26, 1.78	5.28	1.48, 18.75 ^b	6.36 ^c

a. Adjusted for all other variables in the model.

b. 95% confidence interval does not include 1.

c. p value for $\chi^2 < .05$.

3.84, $p < .05$. Conversely, the magnitudes of the odds ratios obtained for high levels of emotional abuse were significantly different across the two data sets. This variable was significantly related to risk of injury in the NVAWS only, and the magnitude of the association between high levels of emotional abuse and injury risk was significantly greater in the NVAWS than in the CVAWS, $\chi^2(1, N = 908) = 6.36, p < .01$. Although whether children witnessed the incident was predictive of injury risk in the NVAWS but not in the CVAWS, the magnitudes of these adjusted odds ratios were not significantly different across the two data sets.

EVALUATING MODEL FIT ACROSS THE TWO DATA SETS

Both multivariate models had good predictive value. The model predicting risk of injury in the NVAWS (76% concordance rate) provided a similar fit to the data as did the model predicting risk of injury in the CVAWS (79% concordance rate). Specifically, a person's risk of incurring an injury could be predicted correctly 76% of the time in the NVAWS and 79% of the time in the CVAWS if one had knowledge of a respondent's scores on the predictor variables in the model.

DISCUSSION

In our article published in the August 2001 (Volume 7, Number 8) issue of *Violence Against Women* (Thompson et al., 2001), we stated that we planned to conduct analyses on risk factors for injury using both the CVAWS and the NVAWS and to compare and contrast the findings. Before we could compare findings across the two data sources, we had to first equate the samples as much as possible. Equating the samples was more difficult than we had expected for the following reasons, all of which limited the conclusions that can be drawn from our study.

- First, although we tried to equate the samples on the types of violence experienced, the questions were not exactly the same. For example, the NVAWS includes "attempt to drown you" in the question on choking.

- Second, the risk factor questions were not identical. For example, the question on children witnessing in the CVAWS was limited to a woman's own children, and the question in the NVAWS was limited to a child who was living in the home and not necessarily the woman's own child. Also, the question on fearing injury or death referred only to the woman herself in the CVAWS but included others close to the woman in the NVAWS.
- Third, estimates of intimate partner violence based on sample surveys are very sensitive to subtleties in question wording and order (Bachman & Saltzman, 1995; Johnson, 1996). Women interviewed in the CVAWS were first asked to think about their spouses and then asked about any violence experienced, whereas women interviewed in the NVAWS were first asked questions about each type of violence experienced and then asked who perpetrated the violence. This may have had the effect in the NVAWS of capturing incidents that were more serious on average.
- Fourth, three variables (injury, perpetrator's alcohol use, and feared injury or death) that were incident specific in the NVAWS were only relationship specific in the CVAWS.
- Fifth, the sample size of women reporting violence in the CVAWS was almost three times as large as the sample size of women reporting violence in the NVAWS, making it easier to find evidence for statistical significance in the CVAWS compared to the NVAWS.

Other limitations, in addition to the differences between the data sources, included that we were unable to incorporate demographic variables into the models because women who were surveyed were asked about their demographic status at the time of the interview and not their demographic status when the abuse occurred. Also, because our data were based on self-reports from women without corroboration from medical reports or partners' perceptions, the reliability and validity of the risk factor or injury data are not known. Finally, we did not achieve the best fitting models for predicting injury risk in each data set because we only included those variables that were similar in the NVAWS and the CVAWS.

Although our comparative analysis was limited by the reasons discussed, there were enough similarities across the two surveys to justify conducting parallel analyses and comparing the findings. In fact, the NVAWS was patterned after the CVAWS. In sum, our results indicated several similarities and differences in the risk factors for injuries across the CVAWS and the NVAWS data.

First, the models had similar predictive value in terms of predicting the likelihood of incurring an injury. Second, many of the risk factors that were significant predictors of injury risk in the CVAWS were also significant predictors of injury risk in the NVAWS. Specifically, in bivariate analyses, a woman's risk of incurring an injury increased in both data sources if children witnessed any of the violence, if the perpetrator was drinking, if she had been victimized by the same partner on another occasion, and if she feared injury or death.

Results from multivariate analyses revealed that perpetrator's drinking and having been victimized on another occasion by the same partner were predictive of injury risk across both data sets, as they were in bivariate analyses. However, unlike in the bivariate analyses, children witnessing any violence and high levels of emotional abuse were predictive of injury risk only in the NVAWS, and fearing injury or death was predictive of injury risk only in the CVAWS.

Because the sample sizes of women reporting violence the CVAWS and the NVAWS differed ($n = 627$ and $n = 281$, respectively), the differences in the magnitudes of the odds ratios obtained from analyses with each data source likely provide the best picture of similarities and differences in risk factors for injury. In this way, we are not relying on statistical significance, which is affected by sample size, but rather we are relying on the magnitudes of the associations between risk factors and the outcome of injury to guide our data interpretations. Furthermore, the multivariate results provide the most accurate picture of risk factors for injury because they tell us the effects of each risk factor while controlling for the simultaneous effects of the other risk factors.

That said, there were many similarities across the two data sources in terms of the magnitudes of associations between the risk factors and injury occurrence. Specifically, there were no differences in the magnitudes of associations between injury risk and the variables assessing onset of violence, children witnessing, perpetrator drinking, other abuse by the same perpetrator, and low or moderate levels of emotional abuse. There were, however, differences in the magnitudes of associations between injury risk and the variables assessing feared injury or death and high levels of emotional abuse. Specifically, fearing injury or death was more

predictive of injury risk in the CVAWS than in the NVAWS. Experiencing high levels of emotional abuse was more predictive of injury risk in the NVAWS than in the CVAWS.

The difference in the association between fearing injury or death and injury risk can likely be explained by three differences in question wording: who fearing injury or death referred to, what they were afraid of, and if it was incident specific. Given that intimate partner violence is typically chronic in nature, a woman's general fear for her life may better capture the degree of overall violence in the relationship compared to a woman's perception at one event in time, and this may explain why this variable was more predictive of injury risk in the CVAWS than in the NVAWS.

Although the magnitude of the association between high levels of emotional abuse and injury risk differed across the two data sources, there was no difference in the magnitudes of the associations between experiencing low or moderate levels of emotional abuse and injury risk. The way the surveys were framed and presented to respondents may partly account for the different findings. The CVAWS was conducted only with women and was specifically presented as a survey on women's safety. Because the NVAWS was conducted with both men and women, it was presented as a survey on personal safety, not just women's safety. Also, in the CVAWS, questions on emotional abuse were asked after questions on experiences with violence, but in the NVAWS, questions on emotional abuse were asked before questions on violence.

In sum, although injuries from intimate partner violence are a significant public health problem, little research has examined factors associated with risk of being injured by a partner. Knowledge of a woman's status on certain factors can help public health practitioners to intervene more effectively with women at risk for experiencing violence-related injuries perpetrated by spouses. Obtaining convergent findings across two data sources allows for more reliable and valid suggestions for intervention strategies. Both the Canadian and the United States data suggest factors that likely increase a woman's risk of injury from intimate partner violence. Alcohol use by the partner and having been victimized more than once by the same partner increased a woman's risk of injury in both data sets. This suggests that alcohol treatment programs should consider addressing intimate partner violence in

their curricula. Also, women who seek medical or social services for battering should be made aware that their partners' alcohol use may increase their risk of being injured. Finally, because intimate partner violence is typically chronic in nature, women should be made aware that their risk of injury increases after the violence reoccurs. Future research should continue to examine risk factors for intimate partner violence-related injuries across different data sets as they become available. By replicating findings across different data sources, we can be more confident in advising women about how to avoid injuries from intimate partner violence.

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