

## Domestic violence

### *Incidence and prevalence in a northern emergency department*

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#### ABSTRACT

**OBJECTIVE** To examine the incidence and prevalence of domestic violence (DV) against women presenting to emergency departments.

**DESIGN** Prospective cohort study to determine health status and exposure to DV.

**SETTING** Hospital emergency department in urban northern Canada.

**PARTICIPANTS** Random sample of women older than 16 presenting to the emergency department for any reason.

**MAIN OUTCOME MEASURES** Demographic variables, exposure to DV.

**RESULTS** Of 1800 potential subjects, 577 (32%) did not fit inclusion criteria. Of the remaining 1223, 983 (80%) agreed to participate. Mean age was 41, 135 of participants (14%) were aboriginal, and 546 (56%) were married. Overall, 725 (74%) had current partners. Incidence of DV resulting in emergency department presentation on the day of assessment was 2%. Of women with partners, 66 (9%) had previously been threatened or injured by those partners. Lifetime prevalence of DV was 51%; physical DV was experienced by 40%. One-year prevalence was 26%.

**CONCLUSION** Incidence of DV was lower than expected; prevalence of DV was high.

#### RÉSUMÉ

**OBJECTIF** Établir l'incidence et la prévalence des cas de violence conjugale (VC) chez les femmes qui se présentent aux services d'urgence (SU).

**TYPE D'ÉTUDE** Étude de cohorte prospective portant sur l'état de santé des femmes et leur exposition à la VC.

**CONTEXTE** Le service d'urgence de l'hôpital d'une ville du nord de l'Ontario.

**PARTICIPANTS** Un échantillon aléatoire de femmes de plus de 16 ans se présentant au SU pour une raison quelconque.

**PRINCIPAUX PARAMÈTRES ÉTUDIÉS** Variables démographiques et exposition à la VC.

**RÉSULTATS** Sur 1 800 sujets potentiels, 577 (32%) ne répondaient pas aux critères d'inclusion. Sur les 1 223 autres, 983 femmes âgées en moyenne de 41 ans ont accepté de participer. Parmi celles-ci, 135 (14%) étaient autochtones et 546 (74%) avaient un partenaire actuel. L'incidence des cas de VC ayant entraîné la visite au SU le jour de l'évaluation était de 2%. Parmi les femmes vivant en couple, 66 (9%) avaient déjà eu des menaces ou subi des sévices de leur partenaire. La prévalence à vie de la VC était de 51%; dans 40% des cas, il s'agissait de VC physique. La prévalence sur un an était de 26%.

**CONCLUSION** Même si l'incidence de la VC était inférieure aux attentes, sa prévalence était élevée.

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Cet article a fait l'objet d'une évaluation externe.

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**D**omestic violence (DV) is referred to as spousal assault, intimate partner violence, wife abuse, wife assault, and battered wife syndrome.<sup>1-4</sup> Most researchers define DV as threats of, or actual physical injury from, hitting, slapping, punching, choking, kicking, injuring with a weapon, or otherwise injuring an intimate partner.<sup>5,6</sup>

Domestic violence is now well recognized as an important social, economic, and public health care issue<sup>2,7-13</sup> that crosses cultural and socioeconomic boundaries.<sup>2-4,14,15</sup> While DV most frequently applies to violence against women in heterosexual relationships, there is growing evidence of same-sex and sex-reversal violence.<sup>2-4,16-18</sup>

Canadian research suggests 51% of women experience at least one episode of violence after the age of 16.<sup>19</sup> A 1999 survey reported that 8% of women married or in common-law unions had experienced violence from their partners within the previous 5 years and were abused more severely and repeatedly than men.<sup>14</sup> Women are more likely to suffer abuse during pregnancy and following childbirth, following relationship termination, during partner intoxication, and following other stressful life events.<sup>14,20-26</sup> Domestic violence is believed to be a “cycle of violence” in which violence is followed by partners’ promises to improve behaviour and by a subsequent escalation in violence.<sup>27</sup>

Domestic violence affects many aspects of health care.<sup>28,29</sup> Abused women frequently visit emergency departments (EDs).<sup>6,8,10,26,30-34</sup> Some present with obvious injuries that require acute care.<sup>7</sup> Others have what appear to be chronic illnesses as manifestations of their DV experience.<sup>2,11,12,29</sup> In addition to

women’s own health risks, there are health sequelae for families, in particular for children.<sup>35,36</sup> Given the potential for subsequent escalation of violence, ED presentation is recognized as an important encounter. Identification of DV is essential for effective intervention and prevention.<sup>6,32,37</sup> Despite this understanding, many staff are uncomfortable with screening, and recommendations for universal screening are often disregarded.<sup>30,38-43</sup>

Studies examining ED populations widely estimate the lifetime prevalence of DV to be as high as 54.2% and the incidence of DV as high as 11.7%.<sup>10</sup> Much of DV research in EDs has been conducted in predominantly inner-city, socioeconomically disadvantaged populations presenting to EDs in the US.<sup>10,30,31,34,41</sup> Generalizations to Canadian, rural, or northern communities could be inappropriate.<sup>44</sup> While DV in community EDs has been reported in the United States,<sup>45</sup> incidence and prevalence of DV in Canadian EDs have not been studied comprehensively. The main objective of this study was to determine the incidence and prevalence of DV among women presenting to a northern, urban, Canadian ED.

## METHODS

### Setting

The Sudbury Regional Hospital is the sole community hospital serving a population of approximately 170 000 with an annual volume of 70 000 patients.

### Inclusions and exclusions

All female ED patients 16 years or older were eligible. Inability to communicate in either English or French, presence of conditions that required immediate medical intervention, transfers from other hospitals, or placement in areas prohibiting private administration of the questionnaire resulted in exclusion. Women judged to be too confused (eg, acute psychosis) or experiencing other medical conditions that did not permit direct questioning (eg, aphasia) were also excluded. Women who presented as a result of substance abuse problems remained eligible for inclusion unless other criteria excluded them.

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## Survey instrument

Patients completed a 61-question survey, the “Women’s Health Questionnaire.” The questionnaire was offered in either English or French. The survey was modeled after a questionnaire used in this ED previously and shown to provide valid, reliable information.<sup>46</sup> The questionnaire was developed in collaboration with content experts, field-tested by our research team, and modified based on patient and institutional feedback.

## Definitions

In this study, the operational definition of DV was one occurrence or more of physical DV or emotional DV in a past or current relationship. Physical DV referred to being hit, slapped, punched, choked, kicked, injured with a weapon, or otherwise injured. Emotional DV was defined as threats and violent or frightening behaviour.

## Sampling technique

The sample was randomly selected based on time of registration in computerized ED records. The first eligible women were considered in sampling frames for 8 consecutive hours on one shift. If patients refused, the next appropriate patient was approached. Sampling occurred during all shifts; however, the study was weighted based on hospital registration volume.

## Data collection

Shifts were randomly allocated using random number tables daily over 7 days weekly for 20 weeks. Interviews were conducted in private, without partners or family members. If a partner did not agree to leave the room, the interview was terminated (see “refused, missed, and otherwise excluded” database). Four bilingual nurses were trained to ensure consistency in questionnaire administration.

## Excluded patients database

We maintained a patient registry daily that consisted of baseline demographic information collected to determine the generalizability of the sample to the population presenting to the ED. Women who refused, were missed, or fulfilled

other exclusion criteria were included in the “refused, missed, and otherwise excluded” database. Interobserver variability (dichotomous variables: kappa [ $\kappa$ ]; continuous variables: intraclass correlation coefficients [ICC]) were calculated for registry information.<sup>47</sup>

## Outcome measurements

**Primary.** The primary outcome of interest for this study was DV incidence. Incidence was defined as presentation to the ED on the day of interview with symptoms directly attributable to DV.

**Secondary.** For prevalence estimates, the two primary outcomes were the prevalence of current partner DV and prevalence of cumulative DV by any partner. Prevalence of DV was divided into current partner, lifetime prevalence (cumulative), and a 12-month prevalence of DV by *any* partner. Aboriginal status was determined by response to the question, “Do you identify yourself as being aboriginal or Native Canadian?”

## Statistical analyses

The sample was compared with the patient registry on the basis of baseline characteristics. Categorical values are reported as counts, percentages, and 95% confidence intervals (CI); they were compared using  $\chi^2$  statistics and odds ratios. Continuous variables are reported as means and standard deviations and are analyzed using unpaired two-tailed *t* tests. Results are considered to indicate significance at  $P < .05$ .

## Sample size calculations

Previous research suggested that the primary end point could range from 2%<sup>8</sup> to 12%.<sup>7</sup> The sample size of 1000 respondents could provide estimates for DV incidence with CIs of  $\pm 1\%$ .

## Ethical considerations

The Sudbury Regional Hospital Ethics Committee approved this project, and informed verbal consent was obtained from each patient. Patients requesting information about community DV services were directed by trained nurses to the appropriate services.

## RESULTS

### Sampling

Overall, 1800 women were approached to participate in the survey; 577 (32%) were excluded, leaving 1223 eligible patients (Figure 1). Most exclusions were the result of patients' being too ill for interviews or being unable to be interviewed in private (385, 47%). Other exclusions resulted from patients' being mentally unstable (64, 8%), having been previously enrolled (59, 7%), having a language barrier (36, 4%), being familiar to the interviewer (13, 2%), having family members refuse to leave the room (10, 1%), and miscellaneous causes (10, 1%). Patients who were missed (48, 4%) and who refused (192, 16%) reduced the number of participants who completed the study to 983 (80% of eligible patients). Patients who were approached but not included were sicker (eg, more interventions, higher admission rates); however, they did not differ from the sample on the basis of age or time of presentation ( $P > .05$ ).

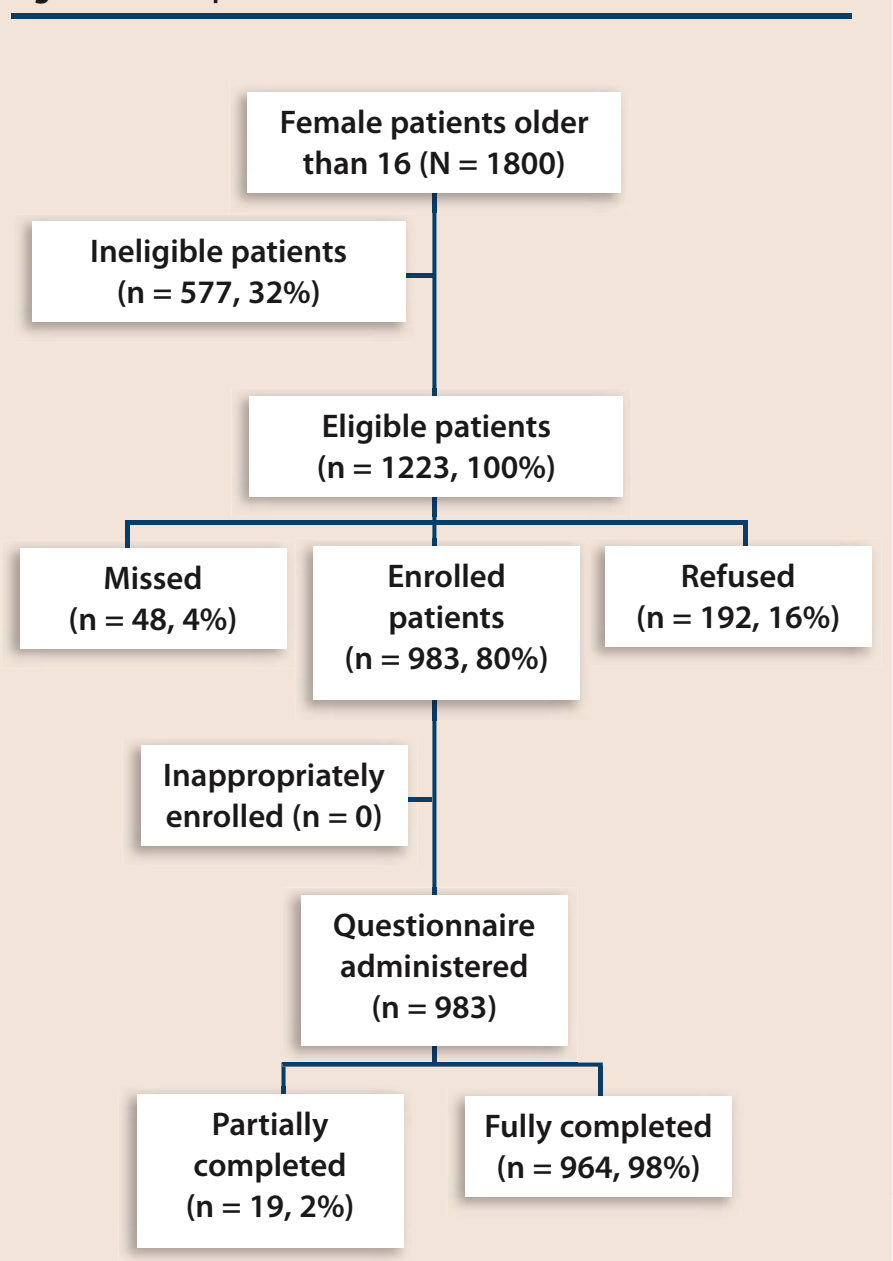
### Demographics

Women in this study had a mean age of 40.8. They were predominantly English speaking, but other languages (209, 21%) and cultures were represented (135, 14% aboriginal; Table 1). Most identified a current partner (725, 75%) and many (404, 41%) worked outside the home. Overall, these results do not differ from survey data from the regional municipality for the same period.<sup>48</sup>

### Health status

Compared with other surveys suggesting women in the region report their health as good to very good,<sup>48</sup> approximately 38% (378) of respondents rated their general health as fair to poor (Table 2). Most respondents (760, 79%) had previously been pregnant, and 9% (76) of the sample reportedly were pregnant at the time of the interview. Many respondents had emotional complaints, 371 (38%) were daily smokers, and 140 (39%) were detected

**Figure 1. Profile of patient recruitment and enrolment**



**Table 1. Socioeconomic factors of 983 female respondents in the emergency department domestic violence study**

SOCIOECONOMIC FACTORS	N* (%)
<b>Age</b>	
• 16-24	222 (23)
• 25-34	216 (22)
• 35-44	200 (20)
• 45-54	139 (14)
• 55-64	99 (10)
• 65+	104 (11)
<b>Current partner</b>	
• Yes	725 (75)
• No	244 (25)
<b>Marital status</b>	
• Married or common-law	546 (56)
• Never married	225 (23)
• Divorced or separated	133 (14)
• Widowed	79 (8)
<b>Employment</b>	
• Full-time	258 (26)
• Part-time	146 (15)
• Homemaker	133 (14)
• Disabled	120 (12)
• Student	115 (12)
• Unemployed	106 (11)
• Retired	91 (9)
<b>Education</b>	
• High school (or less)	645 (66)
• Postsecondary	336 (34)
<b>Native Canadian or aboriginal status</b>	
	135 (14)
<b>Language spoken at home</b>	
• English	771 (79)
• French	189 (19)
• Other	20 (2)

\*Numbers do not total 983 due to nonresponse in some cases.

as potential problem drinkers (CAGE score higher than 1). Overall, 202 (21%) respondents reported an ED visit within the past 4 weeks, and 456 (46%) had contacted other health professionals within the previous month.

## Outcomes

Eighteen respondents reported that DV by their partners was the primary reason for the ED visit on the day of the interview (2%; 95% CI: 1 to 3). Violence from a current partner was reported by 66 (9%; 95% CI: 7 to 12) women. During the 4 weeks before the ED visit, 17 (2%; 95% CI: 1 to 3) women

also reported at least one other episode of physical DV (4-week prevalence). In the 12 months before the interview, 255 women (26%; 95% CI: 23 to 29) reported DV and 502 respondents (51%; 95% CI: 49 to 53) reported lifetime DV by any partner (Table 3).

**Table 2. Health status of 983 female respondents**

HEALTH STATUS	N* (%)
<b>General health</b>	
• Excellent	73 (7)
• Very good	180 (18)
• Good	347 (35)
• Fair	230 (23)
• Poor	148 (15)
<b>Previous pregnancies</b>	
• Yes	760 (79)
• Unsure	5 (1)
• No	197 (20)
<b>Currently pregnant</b>	
• Yes	76 (9)
• Unsure	34 (4)
• No	874 (83)
<b>Use of ED (in past 4 weeks)</b>	
• 0	756 (79)
• 1	124 (13)
• ≥2	78 (8)
<b>Use of other facilities (in past 4 weeks)</b>	
• 0	505 (52)
• 1	275 (28)
• ≤2	181 (18)
<b>Emotional symptoms</b>	
• Anxiety	371 (38)
• Depression	263 (27)
• Sleep problems	386 (40)
<b>Smoking</b>	
• Daily	371 (38)
• Occasionally	77 (8)
• Former	188 (19)
• Never	228 (34)
<b>Drinking</b>	
• Never	313 (32)
• Occasionally	574 (58)
• Daily	17 (2)
• Quit	71 (7)
<b>CAGE questionnaire (positive answers)</b>	140 (39)

\*Numbers do not total 983 due to nonresponse in some cases.

**Table 3. Incidence and prevalence of domestic violence in 983 female respondents presenting to the emergency department:**

*Denominators change based on the questions; some numbers do not match denominator totals due to missing data; percentage might not total 100 due to rounding error.*

INCIDENCE AND PREVALENCE (N)	N (%; 95% CI)
Current partner DV (722)	66 (9; 7% to 12%)
Fear current partner (722)	
• Not safe at all	1 (<1; N/A)
• Mostly unsafe	2 (<1; N/A)
• Sometimes safe	8 (1; 0 to 2%)
• Mostly safe	34 (5; 3% to 6%)
• Safe at all times	677 (94; 92% to 95%)
Pregnancy (760)*	
• Physical abuse (during)	70 (9; 7% to 11%)
• Physical abuse (postpartum)	70 (9; 7% to 11%)
Presenting today for DV (983)	18 (2; 1% to 3%)
Encountered DV in past year (983)	255 (26; 23% to 29%)
Have encountered DV ever (983)	502 (51; 49% to 53%)

95% CI—95% confidence intervals, DV—domestic violence, N/A—not applicable.

\*Violence during most recent pregnancy.

Women who identified themselves as aboriginal were more likely to report DV within the past year (OR = 1.77, 95% CI: 1.20 to 2.60;  $P = .0037$ ) and at some time during their lifetime (OR = 1.74, 95% CI: 1.19 to 2.53;  $P = .0039$ ) than nonaboriginal women.

### Other forms of violence

Physical DV by a partner during the most recent pregnancy was reported by 70 (9%; 95% CI: 7 to 11) women. Seventy (9%; 95% CI: 7 to 11) of 768 previously pregnant women reported suffering physical DV in the 6 months postpartum.

## DISCUSSION

This is the first large cross-sectional study to examine DV incidence and prevalence in a Canadian northern, urban ED. Several findings are important. First, the proportion of women presenting as a direct result of acute DV (2%) is lower than reported by others using similar methods.<sup>10</sup> These results should be interpreted with caution,

however, given the numbers excluded for refusing, missing, and other reasons. These exclusions could indicate patients who are at increased risk of DV, so that the proportions we report might be slightly underestimated.

Second, this study further examined the history of physical DV using various definitions. For example, the high 1-year prevalence of DV, coupled with the frequency of serious injuries reported, highlights the need to identify these patients. With nearly 50% reporting attending an ED within a year, this is an important site for DV identification and intervention.<sup>37</sup> Third, this study reinforces the importance of risky periods for DV, such as pregnancy and the postpartum period. These and other results<sup>11,20,22,23</sup> highlight the need for family and emergency physicians to screen for DV during these important times.

Comparing these results with other DV research is difficult due to variability in definitions and population.<sup>2,7,12,30,31,34,49</sup> Our DV definition is comparable to landmark ED studies<sup>10</sup>; however, we did not include sexual abuse, financial intimidation, or other forms of abuse in our definition of DV. We did not broaden our focus to include violent injuries from any source other than from an intimate partner, as others have done.<sup>33</sup> Consequently, our results could underestimate the overall burden of DV for patients presenting to EDs.

Our study population could be described as urban, economically stressed, not overwhelmingly poor, and culturally similar to the ethnic makeup of Canada as a whole, which is different from that of the United States.<sup>10,30,31,33</sup> Despite these differences, our reported incidence of 2% compares to the lower end of incidence figures reported in the literature (1% to 12%).<sup>8,10,34</sup> Another Canadian study, using different definitions and methods, identified a DV incidence of 14%.<sup>37</sup> Finally, a study in 11 US community EDs reported a similarly low 2.2% incidence for “acute trauma from abuse.”<sup>45</sup>

Within these same studies, however, the prevalence of experiencing DV during the preceding year increased to 14% to 15%.<sup>8,10,34</sup> The recent US study in 11 community EDs reported 1-year prevalence at 14.4%.<sup>45</sup> Alarming, the 1-year

prevalence of DV in our study was almost double these values (26%). The lifetime prevalence of DV (51%) is similar to that reported elsewhere.<sup>16</sup> Finally, our DV prevalence figures attributable to a current partner appear much lower compared with 28%<sup>10</sup> and 64%<sup>33</sup> reported elsewhere. Reasons for these variations in estimates are unclear, and more research is required. Regardless, we have identified a substantial proportion of women presenting to the ED who appear to be at risk and could benefit from intervention.


Given the prevalence of this problem, these results also have implications for DV screening and surveillance in EDs. Currently, ED triage staff either do not screen routinely or use unvalidated screening questions for DV. This might not capture important historical DV information and could underestimate the scope of the problem. Universal screening for all women presenting to EDs has been recommended<sup>36,50</sup>; however, use of any screening tool in EDs has been limited.<sup>32,37,39</sup> While brief screening tools have been developed,<sup>51,52</sup> they lack validity in their application within EDs. Moreover, others have called for further evidence before widespread screening is implemented.<sup>53</sup> If there is a serious interest in women's health issues, appropriate screening tools must be instituted, evaluated, and adjusted.<sup>37</sup>

## Limitations

Our study has several limitations. In addition to the definition of DV and the difficulty with social desirability bias, the method of survey could have biased results. We randomly selected women presenting to the ED for interview and think that this reduced the sampling bias. Despite these efforts, nonresponse was a problem. Contrary to other reports, we *are* able to estimate our nonresponse bias through the maintenance of a "refused, missed, and otherwise excluded" database. The most common reasons for nonresponse were that some women were too ill and some could not be interviewed in private (47%). Women who refused to participate comprised 14% of excluded patients. Overall, we think that, within the limitations of the ED setting, our sampling technique was valid.

The method of interview is another potential source of bias. We requested that the interview be conducted in private without family member involvement. Interviews conducted by a trained nurse using a previously validated, reliable questionnaire in a standardized fashion further reduced the chance of introducing bias into the estimate.

## Conclusion

This large, prospective, cross-sectional study is the first comprehensive Canadian evaluation of ED visits to estimate the incidence and prevalence of DV in a urban northern community. That the current threat and past experience of violence is so pervasive within this community is alarming and warrants immediate attention. The high enrolment and completion rate should make these results generalizable to similar settings; however, more research involving screening and DV intervention is needed to understand how we can best protect women from further violence.<sup>37</sup> 

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## Contributors

*Dr Cox, Dr Bota, Ms Carter, Mr Sahai, and Dr Rowe contributed to the study concept and proposal preparation and to the funding application. All authors participated in planning and logistics and in manuscript preparation. Dr Cox, Dr Bota, and Ms Carter participated in data collection; Ms Bretzlaff-Michaud and Mr Sahai conducted data entry; and Mr Sahai and Dr Rowe analyzed the data.*

**Competing interests**

None declared

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**EDITOR'S KEY POINTS**

- This study examined the incidence and prevalence of domestic violence (DV) in a northern Canadian city's emergency department (ED).
- Of women interviewed, 38% reported fair or poor health, 38% smoked, 39% were at risk of alcohol abuse according to the CAGE screening test, and 14% were aboriginal.
- Only 2% of women reported partner DV as the primary cause for their ED visit; 9% reported any DV with their current partners. In the past 12 months, 26% had experienced some form of DV, and 51% described lifetime exposure.
- Nine percent of women reported DV during a recent pregnancy and 9% during the postpartum period. Aboriginal women were more likely to have experienced DV in the past year (odds ratio [OR] 1.8) or in their lifetimes (OR 1.7).
- This study adds to the evidence for routine screening for DV in EDs.

**POINTS DE REPÈRE DU RÉDACTEUR**

- Cette étude examinait l'incidence et la prévalence de la violence conjugale (VC) dans le service d'urgence (SU) d'une ville du nord du Canada.
- Dans l'ensemble, 38% des femmes interviewées disaient avoir une santé passable à médiocre, 38% fumaient, 39% avaient tendance à faire abus d'alcool selon le test de dépistage CAGE et 14% étaient autochtones.
- Seulement 2% des femmes mentionnaient la VC comme cause première de leur visite à l'urgence; 9% rapportaient au moins un cas de VC de la part de leur partenaire actuel. Vingt-six pour cent avaient subi une forme ou l'autre de VC dans la dernière année et 51% disaient en être victime depuis toujours.
- Neuf pour cent des femmes disaient avoir été victime de VC pendant une grossesse récente et 9% durant le postpartum. Les autochtones étaient plus susceptibles d'avoir subi de la VC au cours de l'année précédente (rapport de cote : 1,8) ou depuis leur naissance (rapport de cote : 1,7).
- Cette étude fournit de nouveaux arguments en faveur d'un dépistage systématique de la VC dans les SU.

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