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The Association between Emergency Department Resources and Diagnosis of Intimate Partner Violence

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Abstract

Objective—There is little information about which intimate partner violence (IPV) policies and services assist in the identification of IPV in the emergency department (ED). The objective of this study was to examine the association between a variety of resources and documented IPV diagnoses.

Methods—Using billing data assembled from 21 Oregon EDs from 2001 to 2005, we identified patients assigned a discharge diagnosis of IPV. We then surveyed ED directors and nurse managers to gain information about IPV-related policies and services offered by participating hospitals. We combined billing data, survey results and hospital-level variables. Multivariate analysis assessed the likelihood of receiving a diagnosis of IPV depending on the policies and services available.

Results—In 754,597 adult female ED visits, IPV was diagnosed 1,929 times. Mandatory IPV screening and victim advocates were the most commonly available IPV resources. The diagnosis of IPV was independently associated with the use of a standardized intervention checklist (OR 1.71, 95% CI 1.04–2.82). Public displays regarding IPV were negatively associated with IPV diagnosis (OR 0.56, 95% CI 0.35–0.88).

Conclusions—IPV remains a rare documented diagnosis. Most common hospital-level resources did not demonstrate an association with IPV diagnoses; however, a standardized intervention checklist may play a role in clinicians' likelihood diagnosing IPV.

Keywords

domestic violence; spouse abuse; battering; hospital services; emergency medicine

Introduction

Intimate partner violence (IPV) has been described as a health care problem of epidemic proportions, occurring in an estimated 1.9 million U.S. women each year and in 25% of U.S.

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women over their lifetime[1–4]. The consequences are wide-ranging and profound. IPV adversely affects eight of ten of the leading health indicators identified by the Department of Health and Human Services and is responsible for an estimated $4.1 billion in direct medical and mental health care costs[5].

The Joint Commission, which accredits and certifies U.S. healthcare organizations, has defined basic standards for policies and procedures to increase the identification of IPV within emergency departments (EDs) [6]. Specific means of meeting the standards vary widely. A comprehensive hospital IPV program may include a physical environment that encourages awareness and reporting of abuse, ongoing training programs for clinical staff, a written hospital policy for the assessment and management of IPV, and advocacy services to assist victims with legal counsel, counselling, and safe shelter[7]. However, most hospitals do not maintain a full menu of services; fewer than half of EDs have algorithms for the management of abused women[8]. With little evidence about which practices translate into increased identification and treatment of abuse[9], hospitals with limited resources have little on which to base decisions about selective use of policies and services.

ED visits represent a great opportunity to identify IPV. The ED sees a disproportionately high prevalence of IPV [2, 10–13] and is a frequent point of contact for victims of abuse in the period before IPV escalates to police intervention or homicide[14, 15]. The objective of this study was to examine availability of a variety of hospital-based IPV policies and services among Oregon hospitals and assess their association with the ED diagnosis of IPV. Given the paucity of existing information regarding the effectiveness of specific IPV-related resources, this study was aimed at examining potential associations between IPV and hospital services and policies, rather than testing a priori hypotheses.

Methods

Study Design

This was an observational study with two main components: first, secondary analysis of previously collected administrative billing data from 21 Oregon EDs and second, standardized telephone survey of ED directors and nurse managers at the same hospitals. Survey data were merged with billing data, hospital-level information, and zip-code based demographic information. The study was approved by our institutional review board.

Study Setting and Population

The data were electronic claims records from a purposive sample of hospitals representing a range of practice settings[16]. A number of factors were considered in selecting participating hospitals, including patient volume, urban versus rural location, and the region of Oregon where hospitals were located. The final dataset contained information on 2,228,169 visits to 21 Oregon EDs between August 1, 2001 and February 28, 2005, a total of 42 months, representing about 52% of all visits to Oregon’s 57 EDs.

We targeted ED directors and nurse managers for participation in the telephone survey, reasoning that they would be most familiar with current ED protocols and services. Our final response rate was 100% (21 out of 21 EDs in the billing dataset).

We chose to limit this study to women because use of IPV-related ICD-9 codes in male patients and ED IPV policies around male victims were too rare for a meaningful analysis. Due to the inability to accurately differentiate between IPV and elder abuse using administrative data, we limited the analysis to patients less than 65 years of age.

Measurements

The billing dataset included standard administrative fields such as patient demographics, hospital disposition, and discharge diagnoses. In addition, unemployment rate was acquired for all Oregon zip codes from Nielsen Claritas Services for the years 2001–2004. Data for 2005 were unavailable so were imputed using linear extrapolation. Hospital-level variables, including bed size and urban/rural designation, were obtained from the Office for Oregon Health Policy and Research.

The survey tool was adapted from the "Delphi Instrument for Hospital-Based Domestic Violence Programs" developed by the Agency for Healthcare Research and Quality using a panel of IPV experts; in field testing, it was found to have high inter-rater reliability[17]. We limited our survey to 6 questions addressing resources most relevant to the ED setting (Figure 1). Prior to implementation, the survey was pilot tested among ED staff unaffiliated with the study.

The telephone survey was administered to ED directors and nurse managers over a one-month period from September to October, 2008. One person was interviewed at each site, based on availability. To characterize the resources available during the period represented by the ED billing data (2001–2005), we asked the respondent if a resource was present and if so, whether it had been implemented before, during or after the study period. If the policies or services were known to have been implemented after 2005, they were considered absent.

Our outcome was the ED diagnosis of IPV as identified and coded by clinicians. Various ICD-9 code groupings have been used to capture IPV diagnoses[18–20]. We defined abuse by ICD-9 codes of 995.80–995.83 (adult maltreatment; physical, emotional/psychological, and sexual abuse), 995.85 (multiple forms of abuse) and/or the external cause of injury code E967.3 (by spouse or partner, ex-spouse or ex-partner).

Data Analysis

To minimize bias associated with complete case analysis and to allow inclusion of all eligible observations in the sample, we assigned values to missing data points in the dataset using multiple imputation [21, 22]. Multiple imputation, which estimates missing values by examining existing patterns of other covariates, has been used in many areas of clinical research [23, 24].

We used descriptive statistics to characterize the sample and multivariable logistic regression to test the association between hospital resources and diagnosis of IPV. We selected variables that had previously described associations with IPV or that were logical potential predictors of IPV, including age, injury, and insurance status (as a measure of socioeconomic status). Hospital-level characteristics that might influence the availability of resources were also incorporated into the model, including bedsize and rural/urban setting. To account for the non-independence of observations at hospitals, standard errors were adjusted by clustering at the hospital level. We assessed multicollinearity with Eigenvalues and goodness-of-fit with the Hosmer-Lemeshow statistic.

Statistical significance was defined as a probability of a type I error of less than 5% (2-tailed). Results are expressed as odds ratios (ORs) with 95% confidence intervals (CIs). Analyses were conducted with Stata, version 10.1 (StataCorp LP, College Station, TX).

Results

There were 754,597 adult female ED visits to the 21 hospitals in our database over the 42-month study period. IPV was a recorded diagnosis 1,929 times (0.26% of visits). Descriptive results are displayed in Table 1. Results of the ED survey are shown in Table 2. Most hospitals (81%) had a policy mandating screening in the ED and some level of on-site victim advocacy (76%), whether part-time or full-time. Regular clinician education about IPV (48%) and use of public display materials related to IPV (48%) were also common among the hospitals in our study.

The results of the multivariate analysis are shown in Table 3. Younger age and black and other non-white race were independently associated with greater odds of receiving an IPV diagnosis. Compared to patients with commercial insurance, Medicaid enrollees and the uninsured were more likely to receive a diagnosis of IPV. Of the hospital policies and services assessed, only one was independently associated with increased odds of receiving an IPV diagnosis: a standardized intervention checklist for the management of IPV (OR 1.71, 95% CI 1.04–2.82). The use of public displays regarding IPV was associated with decreased odds of receiving an IPV diagnosis (OR 0.56, 95% CI 0.35–0.88). We did not find an association between IPV diagnosis and the presence of an IPV policy (OR 1.48, 95% CI 0.70–3.14), clinician training (OR 1.12, 95% CI 0.70–1.80), ED advocacy (OR 1.00, 95% CI 0.37–2.69), or standardized screening questions (OR 0.82, 95% CI 0.42–1.62).

Discussion

In this study of Oregon EDs, we found an extremely low rate of identification of IPV and no association between identification rates and many recommended hospital IPV policies and services. We did find a positive association between use of a standardized intervention checklist and ED diagnosis of IPV. It may not be intuitive that an intervention checklist may influence clinicians' ability to diagnose IPV; after all, one must first identify IPV in order to use a checklist. However, fear of "opening Pandora's Box" has long been recognized as an important barrier to providers assessing for IPV[25]. Clinicians have been shown to respond with uncertainty to disclosures of abuse and to have difficulty following through with formal diagnoses or referrals to services[26]. Our findings may reflect that clinicians are empowered to identify IPV when they know they can respond with definitive action.

Standardized resources such as an intervention checklist [27, 28] are attractive for a number of reasons. They can be administered with good reproducibility by any practitioner, providing consistency of care in a chaotic, high-acuity setting. They are low-technology and inexpensive so can be implemented in EDs of any size. As with the Pronovost checklist [29], which reminds physicians of the minimum requirements for sterile central line placement, an intervention checklist has the potential to be powerful tool reminding ED clinicians to take basic, critical steps for victims of violence: assess immediate safety, ask about children at home at risk for abuse, offer IPV counselling services or safe shelter, remind the patient to call 911 should they feel unsafe. These actions may seem mere common sense, but clinicians rarely perform them[15].

Education of clinicians did not show an association with IPV diagnosis in our study, similar to prior research demonstrating only short-term gains in IPV identification or referrals after educational interventions, even with rigorous training[30, 31]. On-site victim advocacy services also were not associated with IPV diagnosis in the ED. It may be that advocates take ownership in cases of abuse and minimize the physician's role, decreasing physician documentation of abuse. Alternatively, the lack of association may be related to the fact that,

in many EDs, the advocacy role is assumed by staff with many other responsibilities who may not be consistently available to address IPV.

We did not find associations between a formal screening policy or the use of standardized screening questions and IPV diagnosis. Despite the lack of evidence supporting effectiveness of IPV screening[32, 33], there is compelling logic for screening[34, 35] and routine assessment for victimization is supported by most major medical societies[36]. However, requiring screening questions does not guarantee that clinicians consistently or effectively implement them, nor that they respond appropriately to disclosures of abuse[26]. Our findings may reflect that mandating screening without providing effective and accessible means of intervening will have a limited impact on victims.

The use of posters or brochures has been described as part of an integrated approach to improving clinical identification of IPV[31, 37]. We found a negative association between the use of public displays and the diagnosis of IPV, findings similar to a previous study[38] in which fewer women stated they would disclose abuse after IPV posters and hotline cards were put on display. It may be that patients who obtain IPV resources from such materials feel they no longer need to discuss violence with a clinician, or that public displays inadvertently project an unwelcoming message to victims. Another possibility is that public displays, which require minimal expense or personnel involvement, represent a passive approach to addressing violence or lack of other resources.

Limitations

Our primary outcome, the presence of a discharge diagnosis of IPV, is only as accurate as the documentation and coding practices of clinicians. The comparison group must include victims who were not identified or who were not documented due to diagnostic uncertainty. Others may have been definitively diagnosed and treated for abuse, but without adequate documentation. On the other hand, IPV is known to be under-diagnosed in the ED, and our findings are consistent with prior studies showing extremely low rates of detection[20].

Having a policy or service in place does not mean it was used with all patients. Larkin et al found that a “mandatory” screening policy was used in only 30% of patients [39]. If providers at times failed to implement “standard” policies or services, this would likely weaken the strength of a true association and may have contributed to the lack of association we found with many of the resources and IPV detection in our analysis.

Our survey instrument was not a validated assessment tool. Although we reference the Delphi instrument, the full 78-item survey was impractical for use and most of the content was not directly relevant to the ED setting, which was the focus of this study.

Our findings may also be limited by recall bias. ED directors or nurse managers may have been more likely to report the presence of resources when uncertain. Further, since we were attempting to correlate services with data obtained between 2001 and 2005, we asked survey participants to think back several years, creating more potential for error. However, our questions did not demand knowledge of specifics; we asked about broad date ranges rather than specific dates.

Because our study was limited to the state of Oregon, the findings may not be fully generalizable. However, the hospitals sampled represented a range of practice settings, with varying bed sizes, trauma capabilities, and urban and rural locations. Furthermore, the characteristics of the identified IPV victims in our sample are consistent with prior studies of IPV victims in the ED, and estimates of IPV incidence and prevalence in the state of Oregon are comparable to national statistics[40]. General characteristics of the patients diagnosed

with IPV, including disparities in race and clinical profile, were also similar to those noted in previous ED studies[10, 41–43].

Conclusions

IPV is still extremely under-recognized in ED settings. A standardized intervention checklist is one resource that may aid in the identification of victims of IPV. Targeting effective hospital-level IPV resources for use in the ED setting may help to increase detection of IPV, a first step in addressing the healthcare needs of abused women. Further studies are needed to prospectively test the effectiveness of individual and combination resources for addressing IPV among ED patients.

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1. Is there an official policy in place that requires mandatory screening of all women for domestic violence in the ED?
2. Does the hospital or ED provide regular, ongoing training on domestic violence for nurses and/or doctors working in the ED?
3. Are there posters and/or brochures on domestic violence on public display in your ED?
4. Does the ED use a standardized instrument, with at least three questions, to screen patients for domestic violence?
5. Is there a standard intervention checklist for staff to use/refer to when domestic violence victims are identified?
6. Are on-site victim advocacy services for domestic violence provided in the ED?

Figure 1.
Survey of ED Administrators*
* The term ”domestic violence” was used for the survey, assuming that this term would be most familiar to clinicians.

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Table 1

Characteristics of ED patients with and without IPV diagnoses

Patient Characteristic	IPV +		IPV−		P value
	N	%	N	%	
Total	1,929	100	752,668	100	
Age					<0.001
18–33	985	51	314,813	42	
34–49	830	43	290,073	39	
50–64	114	6	147,782	20	
Race/Ethnicity					<0.001
Black	177	9	39,526	5	
Hispanic	85	5	39,456	5	
White	1,573	82	644,773	86	
Other	94	4	28,913	4	
Insurance					
Commercial	400	21	279,992	37	<0.001
Medicare/Other	156	8	118,922	16	
Medicaid	836	43	222,790	30	
Uninsured	537	28	130,964	17	
Percent unemployment					<0.001
<5.96%	857	44	374,686	50	
≥5.96%	1,072	56	377,982	50	
Day of presentation					<0.001
Weekday	1,289	67	525,187	70	
Weekend	640	33	227,481	30	
Shift of presentation					<0.01
Day	522	30	278,778	37	
Evening	741	43	352,711	47	
Night	468	27	121,179	16	
ED disposition					<0.001
Admitted	79	4	77,264	10	
Discharged	1,850	96	675,404	90	

Patient Characteristic	IPV +		IPV−		P value
	N	%	N	%	
Selected discharge diagnoses					
Injury	1,683	87	171,477	23	<0.001
Mental health	147	8	67,152	9	0.045
Alcohol	109	6	15,584	2	<0.001
Drugs	22	1	11,684	2	0.14
Pregnancy	44	2	30,616	4	<0.001

Table 2

Results of ED Administrator Survey of IPV Resources (N=21)

Resources	N(%) with resource
Mandatory screening policy	17(81)
Regular clinician training	10 48)
Public displays	10(48)
Standard intervention checklist	3(14)
Standardized screening instrument	6(29)
On-site victim advocacy services	
Part-time	10(48)
Full-time	6(29)
Any	16(76)

Table 3

Adjusted odds of IPV diagnosis using multivariable logistic regression*

Patient & hospital factors	OR (95%CI)
Age	
18–33	Reference
34–49	0.95(0.84–1.07)
50–64	0.34(0.29–0.40)
Race/Ethnicity	
Black	1.63(1.20–2.21)
Hispanic	1.01(0.72–1.42)
White	Reference
Other	1.43(1.03–1.99)
Insurance status	
Commercial	Reference
Medicare/Other	0.22(0.31–0.57)
Medicaid	2.48(2.16–2.85)
Uninsured	2.41(2.16–2.70)
Practice setting	
Rural	0.57(0.39–2.44)
Urban	Reference
Mandatory screening policy	1.48(0.70–3.14)
Regular clinician training	1.12(0.70–1.80)
Public displays	0.56(0.35–0.88)
Standard intervention checklist	1.71(1.04–2.82)
Screening instrument	0.82(0.42–1.62)
On-site victim advocacy services	
Part-time	1.00(0.38–2.66)
Full-time	1.01(0.34–3.01)
Any	1.00(0.37–2.69)

* Other model variables not shown: presenting shift, presenting day, disposition, % unemployed, other selected diagnoses (injury, alcohol & drug use, mental health, pregnancy).