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Racial and Ethnic Disparities in Police-reported Intimate Partner Violence and Risk of Hospitalization among Women

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Abstract

Objectives—We sought to examine racial and ethnic disparities in police-reported intimate partner violence (IPV) and hospitalization rates and rate ratios among women with police-reported IPV relative to those without such reports.

Methods—This retrospective cohort study linked adult male-to-female IPV police records of non-Hispanic black, Hispanic, and non-Hispanic white women residing in a south central U.S. city with regional hospital discharge data. Rates and incidence rate ratios (IRR) were calculated and age-adjusted where the data allowed.

Results—Police-reported IPV rates were 2 to 3 times higher among black and Hispanic women compared to white women. Overall, hospitalization rates were higher among black and white victims and lower among Hispanic victims than their counterparts in the comparison group (age-adjusted [a] IRR 1.23, 95% confidence interval [CI] 1.08–1.41; aIRR 1.46, CI 1.19–1.79; and aIRR 0.68, CI 0.54–0.86, respectively). Rate ratios were significant for victims among 1) white women for any mental disorder (aIRR 2.02, CI 1.30–3.13) and for episodic mood/depressive disorders in particular (aIRR 2.18, CI 1.33–3.59); 2) black and white women for any injury-related diagnosis (aIRR 2.46, CI 1.48–4.10 and aIRR 3.20, CI 1.65–6.19, respectively); and 3) all women for intentional injury (IRR 10.45, CI 3.56–30.69) and self-inflicted injury (IRR 4.91, 2.12–11.37).

Conclusions—Exposure to IPV as reported to police increases the rate of hospital utilization among Black and white women but lowers the rate for Hispanic women. Screening for IPV in

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hospitals may identify a substantial number of IPV-exposed women. Primary and secondary prevention efforts related to IPV should be culturally informed and specific.

Introduction

Intimate partner violence (IPV) has a substantial impact on the health of women experiencing victimization as well as on the health care system. Women victims utilize healthcare services not only as a direct result of partner violence, but also for care associated with general medical as well as mental health and substance abuse problems (Campbell, 2002; National Center for Injury Prevention and Control, 2003; Petersen, Gazmararian, & Andersen, 2001; Plichta & Falik, 2001; Rivara et al., 2007; Ulrich et al., 2003). Several studies have shown increased nonprimary care use (i.e. emergency department, specialty outpatient, and inpatient hospitalization), in particular, among IPV victims, although the findings with regard to hospitalization have been mixed (Coker, Reeder, Fadden, & Smith, 2004; Kernic, Wolf, & Holt, 2000; Lipsky, Holt, Easterling, & Critchlow, 2004; Rivara et al., 2007). For example, the studies by Kernic et al. (2000) and Lipsky et al. (2004) demonstrated increased rates of hospitalization among IPV victims using criminal justice data to identify IPV victims. On the other hand, Coker et al. (2004) and Rivera et al. (2007) found no significant differences in hospitalization rates between women with and without IPV histories in clinical samples. In the study by Coker et al. (2004), however, severe IPV was associated with increased hospital expenditures.

Police-reported incidents of IPV are an important subset of partner violence, as they tend to be more severe than nonpolice-reported incidents, and victims are more likely to have been injured by their partners in those incidents (Bachman & Coker, 1995; McFarlane, Soeken, Reel, Parker, & Silva, 1997; U.S. Department of Justice, 1995). About 1.2 million incidents of IPV against women are reported to police annually, comprising one-fourth to one-half of physical IPV against women and less than one-fifth of intimate partner rape (Tjaden & Thoennes, 2000; U.S. Department of Justice, 1995). Only a few studies have examined healthcare utilization using law enforcement or judicial system data to identify IPV victims (Kernic et al., 2000; Lipsky et al., 2004). These studies suggest that abused women are more likely to be hospitalized overall and to be hospitalized with mental health (including substance abuse) diagnoses and injury compared to the general population.

Health outcomes research focused on IPV and racial and ethnic disparities is even rarer. General health care utilization studies have shown that black men and women, and to a lesser extent Hispanics, are more likely to utilize emergency department and inpatient hospital services overall compared to non-Hispanic whites (Friedman & Basu, 2004; Gaskin & Hoffman, 2000; Zuckerman & Shen, 2004), even after adjusting for insurance status (Gaskin & Hoffman, 2000) or employment status (Zuckerman & Shen, 2004). Given the greater risk of severe IPV, including police-reported IPV, among black women (Bachman & Coker, 1995; Cunradi, Caetano, & Schafer, 2002; Lipsky, Holt, Easterling, & Critchlow, 2005) and the increased use of non-primary health care among black and Hispanic women, it is reasonable to suggest that black and Hispanic IPV victims in particular are more likely to utilize hospital services compared to their nonvictim counterparts.

This study is unique in its attempt to examine racial and ethnic disparities with regard to the impact of police-reported IPV victimization on women's health and the healthcare system, providing a broader understanding of these relationships among ethnic minority populations. In addition, identification of abused women using law enforcement data is not dependent on subject recall, self-disclosure to healthcare providers or researchers, or access to healthcare. Further, using police and hospitalization data may better elucidate the relationship between

what may be more severe IPV and major mental and physical health problems, including substance abuse.

The primary aims of this study are to (1) estimate rates of police-reported IPV victimization among non-Hispanic white, non-Hispanic black, and Hispanic women; (2) estimate annual hospitalization rates and rate ratios by police-reported IPV status and race/ethnicity for all hospitalizations and by diagnostic category, including substance abuse, mental disorder, and injury.

Methods

Study Design and Study Population

This is population-based retrospective cohort study included non-Hispanic white, Hispanic, and non-Hispanic black women 18 to 49 years of age residing in Dallas, Texas as the base population. Dallas Police Department family violence incident records were linked to regional hospital discharge records for 2004 and 2005 in the parent study, but only those women reporting an incident perpetrated by a male intimate partner were included in the current analysis (Figure 1). Thus, women residing in Dallas in 2004 who reported an IPV incident perpetrated by a male partner comprised the exposed cohort; these data reflect complainant reporting only, regardless of outcome (arrest or conviction). Women residing in Dallas without such an incident constituted the unexposed cohort or comparison group. The study sample was restricted in terms of age given the substantial decline in IPV victimization in older age groups (Breiding, Black, & Ryan, 2008;Greenfeld et al., 1998;Vest, Catlin, Chen, & Brownson, 2002). Race/ethnicity was restricted since few cases of police-reported family violence occurred in racial/ethnic groups other than white, Hispanic, and black women. This study was approved by the Committee for Protection of Human Subjects at the University of Texas Health Science Center at Houston and the University of Washington Institutional Review Board/ Human Subjects Review Committee.

Data Sources

Police records—Dallas Police Department computerized offense reports coded as family violence were initially included in the larger study if the victim-suspect relationship was classified as ‘spouse’, ‘ex-spouse’, ‘common-law spouse’, ‘roommate’, ‘other family’, or ‘unknown’. Written narratives from police reports with victim-suspect relationship of ‘roommate’, ‘other family’, and ‘unknown’ were reviewed to determine if an incident occurred between current/ex-intimate partners. Duplicate incidents and incidents which occurred after the index case were identified and deleted from the final police file. Of the 5912 incident cases, 1137 (19.2%) remained without a clear intimate partner relationship in the offense report. Cases with unconfirmed relationships were retained for linkage to hospital discharge records, but only those linkages with an IPV incident record were utilized in this analysis.

Hospital records—Hospital inpatient discharge data for Dallas residents were collected from 73 hospitals licensed by the State of Texas from 19 surrounding counties in the Dallas-Fort Worth area and submitted to a regional data collecting agency, the Dallas-Fort Worth Hospital Council, before submission to the Texas Department of State Health Services. Hospital discharge records with substance abuse diagnoses are required to be blinded (i.e. data is de-identified prior to release to the Council) in certain cases, for example if the patient is discharged from a substance abuse-designated hospital bed. Therefore, these records could not be linked to police records; by default, they would remain as hospitalizations among the comparison group. An analysis of the 2004 discharge data among females revealed that 1.5% of all hospital discharges were blinded due to substance abuse. Of those hospitalizations with a substance abuse diagnosis, 15.7% were blinded.

Data Linkage—After data linkage, 20 hospitalizations were found to be miscoded on ethnicity (i.e. not belonging to the three ethnic groups) and were excluded from the analysis. The total number of hospital discharges (hereafter referred to as hospitalizations) among the exposed cohort was 766. Women with miscoded ethnicity (n=15) were also removed from the denominator for the hospital analyses. A 10% simple random sample of hospital records among Dallas female residents that did not link to police-reported family violence incidents constituted the numerator for the comparison group; the denominator was derived from females residing in Dallas in the 2000 census (minus the number of family violence exposed women), from which a 10% stratified sample (within each race/ethnicity and age group) was taken. The comparison group consisted of 3831 hospitalizations and 28,050 women.

Measures

Outcome measures—The main outcome in this study was the annual rate of hospitalizations. In addition, rates for specific non-mutually exclusive categories of hospitalization were calculated for 1) an alcohol or other drug use diagnosis; 2) any mental health diagnosis unrelated to substance use; 3) an episodic mood or depressive disorder diagnosis; 4) any injury diagnosis; 5) intentional injury diagnosis (excluding self-inflicted injury); and 6) self-inflicted injury diagnosis.

Up to nine International Classification of Diseases, Ninth Revision (ICD-9) codes and the first external cause of injury (E) code were used to determine the diagnostic categories (see Appendix). Alcohol and other drug use-related codes, excluding tobacco use disorders, comprised the substance abuse disorder category. Mental health-related codes, excluding substance abuse disorders, comprised the mental health disorder category; episodic mood and depressive disorder codes were a subset of mental health disorders. Injury-related ICD-9 codes, excluding late effects of injury and allergic reactions, and E codes for any injury, excluding injury due to surgical and medical care, adverse reaction to correct drug properly administered, and late effects of injury, comprised the injury-related category. Intentional injury-related ICD-9 codes, including adult maltreatment/abuse/neglect, and E codes for homicide and injury purposely inflicted by others comprised the intentional injury category. E codes for suicide and self-inflicted injury comprised the self-inflicted injury category.

Exposure Measures—IPV victimization was defined as a Dallas police-reported IPV incident perpetrated by a male with whom the female subject had an intimate relationship at the time of or prior to the incident. The first (index) incident in the study period was selected for linkage with hospital discharge records. If a subject had more than one incident with the same date, the incident with the more serious offense was utilized. Women from the general population of Dallas without a police-reported family violence incident in 2004 were considered nonexposed to police-reported IPV and thus constituted the comparison group.

Sociodemographic measures—Police-reported IPV exposed subjects' race/ethnicity (non-Hispanic white, non-Hispanic Black, Hispanic of any race), and age group (18–25, 26–34, 35–49), were initially determined from the police records. Hospitalization records were subsequently used to classify race/ethnicity and age group for the linked records. Agreement between police and hospital records on race/ethnicity was high; 98% of hospitalizations with race/ethnicity coded as black, 96% coded as Hispanic, and 85% coded as non-Hispanic white in the police records matched the race/ethnicity of the linked hospital records. The remainder of those hospitalizations classified as non-Hispanic white in the police file were classified as Hispanic in the hospital records (n=21). Race/ethnicity and age group for the comparison group were determined from hospitalization records for calculation of the numerator and from census data for the denominator.

Data Analysis

Annual police-reported IPV rates per 1000 women (point estimates and 95% confidence intervals [CI]) were calculated for Dallas female residents; CIs for age group-specific rates were calculated as Poisson exact to increase precision. Comparisons of proportions between cohorts within each age and each race/ethnicity strata also were conducted using Chi square analyses.

Annual hospitalization rates and incidence rate ratios (IRRs) with 95% CIs were calculated among the two cohorts; age-adjusted rates and rate ratios were calculated with the exception of age-specific estimates. Due to small subgroup sample sizes, it was not possible to calculate age-adjusted or race/ethnicity-specific rates for intentional and self-inflicted injury rates. IRRs were calculated with negative binomial maximum-likelihood or Poisson regression, both of which account for the scarcity of counts. If overdispersion of the dependent variable was indicated in the negative binomial model, that model was used; if no overdispersion was indicated, Poisson estimates were used. Poisson regression was also employed in cases where the negative binomial model would not converge after multiple (>100) iterations.

All analyses were conducted with Stata 9.2 (Stata Corporation, College Station, TX).

Results

Police-reported intimate partner violence rates

The highest police-reported IPV rate in Dallas, Texas occurred in the 18–24 year age group, over twice that of the oldest age group (Table 1). The majority of police-reported IPV occurred among non-Hispanic black (46.2%) and Hispanic (37.7%) women; rates were two to three times higher in these groups compared to non-Hispanic white women.

Hospitalization rates and rate ratios

The overall and age-specific hospitalization rates among women with police-reported IPV were comparable to those of the comparison group (Table 2). Rates among non-Hispanic black and white women with police-reported IPV were significantly higher, however, than those of their counterparts in the comparison group. The highest rates were among those in the younger age groups, and only those rates were significantly greater among the exposed. Conversely, the rate among Hispanic women with IPV was nearly 40% lower than that of the comparison group; the rate ratios were significant only in the two older age groups.

Hospitalization by diagnostic group

Hospitalization rates associated with substance abuse diagnoses occurred at substantially higher rates among non-Hispanic black and white women compared to Hispanic women in both cohorts, although no statistically significant differences were detected between cohorts (Table 3). Significant rate ratios for any mental disorder and mood/depressive disorders were revealed for non-Hispanic whites only, with rates more than twice as high among those exposed. Episodic mood and depressive disorder diagnoses comprised the majority of mental disorder diagnoses among the exposed and comparison groups (74% and 67%, respectively).

Injury-related Diagnoses

The rate associated with any injury diagnosis was 2.5 times higher among exposed non-Hispanic black women and three times higher among exposed non-Hispanic white women compared to their counterparts in the comparison group (Table 4). The rate of an intentional injury diagnosis was significantly higher among the exposed cohort. Although the data could not support race/ethnic-specific rates, 11 (69%) of the 16 hospitalizations associated with an

intentional injury among the exposed occurred among non-Hispanic black women; four hospitalizations (25%) occurred among exposed Hispanic women and one (6%) among exposed non-Hispanic white women. The distribution among racial/ethnic groups in the comparison group was 56%, 11%, and 33%, respectively.

The rate of self-inflicted injury was five times greater among exposed women. Again, the majority (60%) of hospitalizations among the exposed associated with a self-inflicted injury diagnosis occurred among non-Hispanic black women. The few remaining cases were distributed evenly among Hispanic and non-Hispanic white women. In the comparison group, 8%, 33% and 58% occurred among non-Hispanic blacks, Hispanics, and non-Hispanic whites, respectively.

Seven deaths, two in the exposed cohort and five in the comparison group, were recorded in the hospital discharge records (data not shown). None of the deaths were associated with an intentional or self-inflicted injury.

Discussion

These findings revealed significant racial and ethnic disparities in police-reported IPV and in the relationship between police-reported IPV and hospitalization. With regard to police-reported IPV, the National Crime Victimization Survey (Bachman & Coker, 1995; Catalano, 2007) and a population-based urban study among women during pregnancy (Lipsky et al., 2005) found that black and Hispanic women were more likely than white women to report IPV to the police. The increased rate of police-reported IPV among black women in particular is consistent with findings from other studies suggesting that black women experience more severe or fatal IPV overall (Cunradi et al., 2002; Paulozzi, Saltzman, Thompson, & Holmgreen, 2001), since police-reported IPV tends to be more severe (Bachman & Coker, 1995; McFarlane et al., 1997; U.S. Department of Justice, 1995). Disparities in reporting IPV to police also may be explained by other socioeconomic factors (Breiding et al., 2008; Field & Caetano, 2005; Pearlman, Zierler, Gjelsvik, & Verhoek-Oftedahl, 2003), which the current study was not able to take into account. On the other hand, racial and ethnic disparities have varied in general population surveys, with rates among black and Hispanic women higher than among white women in some surveys (Catalano, 2007) but not others (Tjaden & Thoennes, 2000). It is possible, then, that police-reported IPV may overrepresent the true prevalence of IPV among black and Hispanic women.

Our findings are unique with regard to race/ethnic-specific rates of hospitalization. Although we hypothesized that both black and Hispanic victims would utilize inpatient services at greater rates than their counterparts in the comparison group, this held true only for black women. In addition, non-Hispanic white victims also had higher rates of utilization compared to those in their comparison group. The lower rate among Hispanic women could be explained by social, cultural, and economic factors not accounted for in the current study (Bauer, 2000; Bent-Goodley, 2007; U.S. Department of Health and Human Services, 2001, 2003; Lipsky, Caetano, Field, & Larkin, 2006; Vega & Alegría, 2001; West, Kantor, & Jasinski, 1998). Low acculturation, for example, contributes to a decrease in use in both health and social services among Hispanic victims (Lipsky et al., 2006; West et al., 1998). Several barriers to health care for abused Latina immigrant women have also been suggested, including social isolation, language barriers, discrimination, fear of deportation, dedication to family, shame, and cultural stigma of divorce (Bauer, 2000).

Another major finding revealed in the current study is that only non-Hispanic white women victims had hospitalization rates associated with mental disorder or substance abuse diagnoses that were significantly greater than the comparison group. These findings reflect the complexity

of racial and ethnic disparities in mental health and healthcare utilization (Borowsky et al., 2000; Das, Olfson, McCurtis, & Weissman, 2006; U.S. Department of Health and Human Services, 2001; Hasin, Goodwin, Stinson, & Grant, 2005; Kessler et al., 2003; Van Voorhees, Walters, Prochaska, & Quinn, 2007; Vega et al., 2007; Wells, Klap, Koike, & Sherbourne, 2001). Mental health disorders may be less likely to occur or be diagnosed among blacks and Hispanics, but blacks and Hispanics also tend to report greater unmet need for mental health and substance abuse treatment compared to non-Hispanic whites (Blanco et al., 2007; Borowsky et al., 2000; Das et al., 2006; U.S. Department of Health and Human Services, 2001; Hasin et al., 2005; Kessler et al., 2003; Van Voorhees et al., 2007; Vega et al., 2007). Lipsky and Caetano (Lipsky & Caetano, 2007) however, found that Hispanic and non-Hispanic white, but not black, female IPV victims were more likely than their nonvictim counterparts in the general population to report unmet need for mental health treatment.

Finally, this study revealed increased rates of diagnoses related to injury among IPV victims, especially among non-Hispanic black and white women. Unfortunately, we were unable to assess rates of IPV-related injuries due to the few cases of intentional injury with perpetrator E codes. Few other studies have considered injury-related healthcare utilization and IPV outside of emergency department studies, particularly with regard to racial and ethnic disparities. Nevertheless, our findings are consistent with other studies linking hospital and criminal justice data (Kernic et al., 2000; Lipsky et al., 2004). For example, Kernic et al. (Kernic et al., 2000) found higher rates of injury-related diagnoses among abused compared to nonabused women, although the relative risks were relatively comparable to the current findings. Our results are also congruent with those of Cokkinides et al. (Cokkinides, Coker, Sanderson, Addy, & Bethea, 1999) who reported a higher prevalence of trauma-related hospitalizations among pregnant women with a past year history of physical violence.

Strengths and Limitations

The main strengths of this study include its diverse population base and its unique attempt to focus on racial and ethnic disparities in estimating the impact of police-reported IPV victimization on the health of women and the healthcare delivery system. Several limitations also should be noted. First, police data in general are limited by the willingness of police officers to respond to family violence calls and to accurately report those calls as family violence. Although underreporting by police is possible, the Family Violence Unit of the Dallas Police Department actively collaborates with family violence community organizations and programs, which may increase the responsiveness of police officers in family violence incidents. It is important to note that the data reflect reporting only, not arrests or convictions. Further, only Dallas Police Department data were used to identify police-reported IPV. Although the study was limited to Dallas City residents, women in the comparison group could have experienced police-reported violence while residing in other cities during the one-year study period and thus would have been misclassified as unexposed. This could have biased the estimate of the association between IPV and hospitalization downward if those individuals were hospitalized while also residing in Dallas during the study period. In addition, the use of police-reported IPV as the exposure of interest likely resulted in misclassification of the comparison group. There were certainly some women in the comparison group who had been victims of IPV but had not reported it to the police. This also would have biased the results toward the null. The study's generalizability, then, is limited to those who report IPV to the police. Second, all police-reported family violence cases were included in the data linkage procedures for the parent study. The numerator for the comparison group — those hospitalizations that did not link to police records — would have excluded not only IPV confirmed cases but also other family violence cases. Thus, all family violence cases were excluded from the denominator of the comparison group. Therefore, the rates of hospitalization among the comparison group may have been underestimated, effectively overestimating the

rate ratios. Findings from an analysis conducted on the total sample (unpublished data) followed similar patterns to the current study, however.

Third, hospitalizations associated with a substance abuse diagnosis may have been underestimated among the exposed cohort in this study since a portion of hospital discharge records with substance abuse diagnoses were blinded and would not have linked to police records. It is not possible to know the distribution of those cases by cohort, although the blinding would likely have resulted in nondifferential misclassification. A portion of the exposed cohort, potentially at greater risk of substance abuse, may have been more likely to have blinded hospital records, driving the rate ratio toward the null.

Finally, it was not possible to estimate IPV-related injury in this sample due to the few E codes with perpetrator data. In addition, only one E code was available per record. As Weiss et al. (Weiss, Ismailov, Lawrence, & Miller, 2004) have demonstrated, poor perpetrator coding in hospital discharge data limit our ability to assess serious IPV-related injury. Perpetrator coding also appears to be biased, with non-white women less likely to have a perpetrator code than white women, although we could not accurately assess this in the current study.

Conclusions

The findings from this study indicate that women experiencing police reported IPV, especially young non-Hispanic black and white women, are utilizing hospital services at higher rates overall as well as for injury and violence-related problems. This suggests that screening hospitalized women for IPV could assist in identifying those women at risk for further violence and other mental and physical health problems. Although the U.S. Preventive Services Task Force found insufficient evidence of the efficacy of IPV screening and intervention to recommend for or against routine IPV screening (U.S. Preventive Services Task Force, 2004), many professional societies continue to recommend screening or assessing patients for IPV (American College of Emergency Physicians, 2008; American College of Obstetricians and Gynecologists, 2008; American Medical Association, 2005; Joint Commission on Accreditation of Healthcare Organizations, 1992). Screening for IPV, if done sensitively, will demonstrate at a minimum that the healthcare provider cares; it is a window of opportunity to provide resources and referrals that may never have otherwise occurred (Lachs, 2004).

These findings also illustrate the need to focus more intensive primary as well as secondary prevention efforts on black and Hispanic communities, with police as well as community and public health organizations working together to provide education and resources. That victims appear to have more mental health and injury-related problems overall further substantiates the need for prevention, not only of IPV, but also those factors associated with partner violence. Finally, more research is needed to explore why Hispanic victims are less likely to use hospital services than Hispanic women in the general population. Future research should focus on ethnic-specific barriers and how those issues might be effectively addressed.

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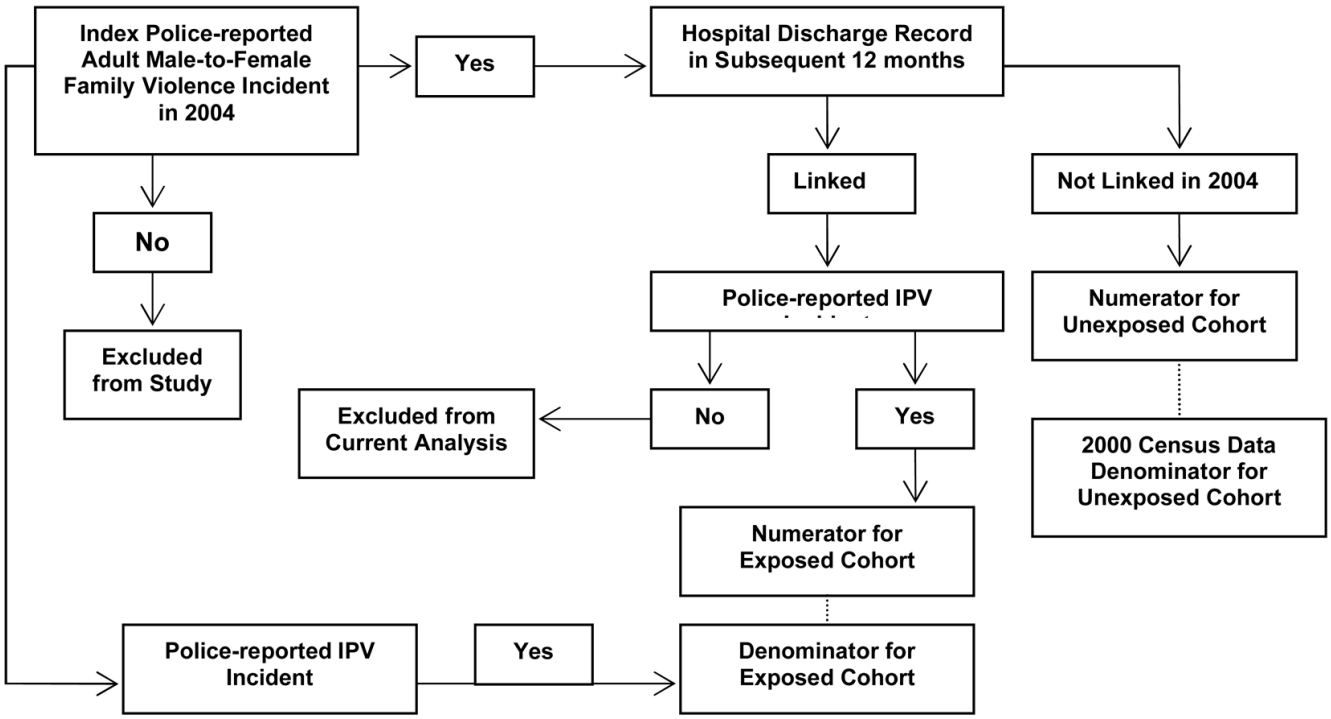

Figure 1.
Police-reported Intimate Partner Violence (IPV) and Hospitalization Study Flow Chart

Table 1

Rates of Police-Reported Intimate Partner Violence (IPV) by Demographic Characteristics, Dallas, Texas, 2004

	Police Reported IPV[a] (N=4775)	No Police Reported IPV[b] (N=28050)	
	N (%)	N (%)	Rate/1000 women[c] (95% CI)
Age Group (years)			
18–24	1528 (32.0)	6152 (21.9)***	24.0 (22.8, 25.3)
25–34	1947 (40.8)	10194 (36.3)**	18.7 (17.9, 19.5)
35–49	1300 (27.2)	11704 (41.7)***	11.0 (10.4, 11.6)
Race/Ethnicity			
Non-Hispanic Black	2205 (46.2)	8099 (28.9)**	26.9 (25.7, 28.0)[d]
Hispanic	1798 (37.7)	9796 (34.9)*	17.1 (16.3, 17.9)[d]
Non-Hispanic White	772 (16.2)	10155 (36.2)**	7.9 (7.3, 8.4)[d]

Note. CI=Confidence interval. CIs for age group are calculated as Poisson exact.

[a] Women residents of Dallas with police-reported adult male-to-female IPV

[b] 10% stratified sample of 2000 U.S. Census data for Dallas City residents (excluding women reporting family violence)

[c] Rates based on full census for each subgroup

[d] Age-adjusted rate

* p<.05 comparing police-reported IPV group to no police-reported IPV group

** p<.001 comparing police-reported IPV group to no police-reported IPV group

*** p<.001 comparing police-reported IPV group to no police-reported IPV group

Table 2

Annual Hospitalization Rates per 1000 Woman Years and Incidence Rate Ratios, by Police-Reported Intimate Partner Violence (IPV) Status; Dallas, Texas 2004–2005

	Police Reported IPV[a] (N=4760)		No Police Reported IPV[b] (N=28050)		
	N	Rate	N	Rate	IRR (95% CI)
Total Hospitalizations	766	147.1	3831	137.9	1.05 (0.81, 1.36)
By age (years)					
18–24	380	250.2	1129	183.5	1.38 (0.86, 2.20)
25–34	254	130.8	1451	142.3	0.93 (0.62, 1.40)
35–49	132	101.6	1251	106.9	0.88 (0.60, 1.30)
Non-Hispanic Black	429	195.0	1195	148.2	1.23 (1.08, 1.41)
By age (years)					
18–24	208	294.6	332	198.2	1.49 (1.25, 1.77)
25–34	138	160.3	360	132.1	1.21 (1.00, 1.48)
35–49	83	130.1	503	136.0	0.96 (0.76, 1.21)
Hispanic	232	124.8	1710	163.5	0.68 (0.54, 0.86)
By age (years)					
18–24	133	213.5	638	228.3	0.94 (0.78, 1.13)
25–34	74	95.9	744	190.8	0.50 (0.40, 0.64)
35–49	25	64.4	328	105.8	0.61 (0.41, 0.91)
Non-Hispanic White	105	145.0	926	91.8	1.46 (1.19, 1.79)
By age (years)					
18–24	39	205.3	159	94.5	2.17 (1.53, 3.08)
25–34	42	135.9	347	97.3	1.40 (1.01, 1.93)
35–49	24	87.9	420	85.6	1.03 (0.68, 1.55)

Note. IRR=Incidence rate ratio calculated using Poisson or Negative Binomial regression, age-adjusted except age-specific rate ratios; CI=confidence interval. Age-adjusted rates except age-specific rates.

[a] Among women residents of Dallas with police-reported adult male-to-female IPV in 2004. Fifteen women were excluded from the denominator due to race/ethnicity coding errors in the hospital file.

[b] Among women residents of Dallas without police-reported adult family violence in 2004; 10% random sample

Table 3

Annual Hospitalization Rates per 1000 Woman Years and Incidence Rate Ratios, by Diagnostic Category and Police-Reported Intimate Partner Violence (IPV) Status; Dallas, Texas 2004–2005

	Police Reported IPV[a] (N=4760)		No Police Reported IPV[b] (N=28050)		
Diagnostic Category (ICD-9-CM)	N	Rate	N	Rate	IRR (95% CI)
Alcohol and Drug- related Diagnoses (291-292, 303-305)[c]					
Total	39	9.2	198	6.9	1.28 (0.68, 2.39)
Non-Hispanic Black	27	12.1	89	10.7	1.25 (0.81, 1.94)
Hispanic	2	1.2	24	2.4	0.46 (0.11, 1.96)
Non-Hispanic White	10	12.0	85	8.0	1.71 (0.89, 3.30)
Mental Disorders[d] (293-302, 306-316)					
Total	65	14.7	338	11.8	1.44 (0.89, 2.32)
Non-Hispanic Black	29	12.9	127	15.1	1.00 (0.67, 1.51)
Hispanic	13	7.5	50	5.3	1.49 (0.81, 2.76)
Non-Hispanic White	23	30.0	161	15.2	2.02 (1.30, 3.13)
Episodic Mood and Depressive Disorders[e] (296 and 311)					
Total	48	10.6	227	7.9	1.59 (0.98, 2.58)
Non-Hispanic Black	20	9.0	73	8.7	1.16 (0.70, 1.91)
Hispanic	10	5.8	35	3.8	1.66 (0.82, 3.36)
Non-Hispanic White	18	23.3	119	11.1	2.18 (1.33, 3.59)

Note. IRR=Incidence rate ratio calculated using Poisson or Negative Binomial regression, age-adjusted; CI=confidence interval; ICD-9-CM=International Classification of Diseases, Ninth Revision, Clinical Modification. Age adjusted rates except age-specific rates.

[a] Among women residents of Dallas with police-reported adult male-to-female IPV in 2004. Fifteen women were excluded from the denominator due to race/ethnicity coding errors in the hospital file.

[b] Among women residents of Dallas without police-reported adult family violence in 2004;10% random sample

[c] Excludes 305.1—Tobacco use disorder/dependence

[d] Mental Disorders excluding alcohol or drug-related disorders

[e] Subgroup of Mental Disorders

Table 4

Annual Injury-Related Hospitalization Rates per 1000 Woman Years and Incidence Rate Ratios, by Police-Reported Intimate Partner Violence (IPV) Status; Dallas, Texas 2004–2005

	Police Reported IPV[a] (N=4760)		No Police Reported IPV[b] (N=28050)		
Diagnostic Category (E code and/or ICD-9-CM)	N	Rate	N	Rate	IRR (95% CI)
Any Injury[c]					
Total	46	10.2	114	4.0	2.48 (1.75, 3.50)
Non-Hispanic Black	25	11.2	40	4.8	2.46 (1.48, 4.10)
Hispanic	10	5.4	27	2.7	1.98 (0.95, 4.10)
Non-Hispanic White	11	13.4	47	4.6	3.20 (1.65, 6.19)
Intentional Injury[d] (E960-E969; 995.80-995.85)					
Total	16	3.4[e]	9	0.3[e]	10.44 (3.55, 30.69)[f]
Self-Inflicted Injury[g] (E950-E959)					
Total	10	2.1[e]	12	0.4[e]	4.91 (2.12, 11.37)[f]

Note. IRR=Incidence rate ratio calculated using Poisson or Negative Binomial regression, age-adjusted except where noted CI=confidence interval; ICD-9-CM=International Classification of Diseases, Ninth Revision, Clinical Modification. Age-adjusted rates except where noted.

[a] Among women residents of Dallas with police-reported adult male-to-female IPV in 2004. Fifteen women were excluded from the denominator due to race/ethnicity coding errors in the hospital file.

[b] Among women residents of Dallas without police-reported adult family violence in 2004;10% random sample

[c] Includes External Causes of Injury and Poisoning Codes E800-848, E850-869, E880-904, E910-928, E950-995 and ICD-9-CM codes 800-904 and 910-995 (excluding certain adverse effects 995.0-995.4, 995.86, 995.89, 995.90-995.94)

[d] Subgroup of Any Injury; includes homicide and injury purposely inflicted by other persons and adult maltreatment/abuse/neglect

[e] Crude rate

[f] Crude IRR

[g] Subgroup of Any Injury; includes injuries in suicide and attempted suicide and self-inflicted injuries specified as intentional

Appendix

International Classification of Diseases, Ninth Revision (ICD-9) codes and the first external cause of injury (E) code used to determine diagnostic categories.

Diagnostic Category	ICD-9 Codes	E Codes	Exclusions
Substance Abuse Disorders	291, 303, 305.0, 535.30-31, 571.0-3, 790.3, 292,304, 305, V65.42		305.1 (tobacco use disorder)
Mental Health Disorders	293-316		Substance Abuse Disorders
Episodic Mood and Depressive Disorders	296, 311		
Any Injury	800-904, 910-995	E800-848,E850-869, E880-928, E950-998	905-909 (late effects); 995.0-995.4, 995.86, 995.89, 995.90- 995.94 (allergic reactions); E870-879 (surgical and medical care), E930-949 (adverse reactions), E929, E999 (late effects)
Intentional Injury	995.80-995.85	E960-969	
Self-Inflicted Injury	950-959		