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Injury Outcomes in African American and African Caribbean Women: The Role of Intimate Partner Violence

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Abstract

Introduction—Intimate partner violence has been linked to increased and repeated injuries, as well as negative long-term physical and mental health outcomes. This study examines the prevalence and correlates of injury in women of African descent who reported recent intimate partner violence and never abused controls.

Methods—African American and African Caribbean women aged 18–55 were recruited from clinics in Baltimore, Maryland and the US Virgin Islands. Self-reported demographics, partner violence history and injury outcomes were collected. Associations between violence and injury outcomes were examined with logistic regression.

Results—All injury outcomes were significantly more frequently reported in women who also reported recent partner violence than those never abused. Multiple injuries were nearly three times more likely to be reported in women who had experienced recent abuse (AOR 2.75, 95% CI 1.98–3.81). Reported injury outcomes were similar between the sites except that women in Baltimore were 66% more likely than their US Virgin Islands counterparts to report past year emergency department use ($p=0.001$). In combined site multivariable models, partner violence was associated with past year emergency department use, hospitalization and multiple injuries.

Discussion—Injuries related to intimate partner violence may be part of the explanation for the negative long-term health outcomes. In this study partner violence was associated with past year emergency department use, hospitalization and multiple injuries. Emergency nurses need to assess for intimate partner violence when women report with injury to make sure the violence is addressed in order to prevent repeated injuries and negative long-term health outcomes.

Introduction

Intimate partner violence (IPV) is a major public health and social problem. The most recent Centers for Disease Control and Prevention population survey found that nearly 1 in 3 women had reported physical, sexual or stalking abuse by an intimate partner in their lifetime.¹ Women of African descent have been found to be disproportionately affected by IPV.^{1,2} Studies using community samples and large nationally representative samples have consistently reported higher rates of IPV among African American and Hispanic women, compared to their Caucasian counterparts.³ Studies have also found high prevalence of IPV among Black women in Caribbean countries.^{4–6} IPV is a significant contributor to negative health outcomes among women, including physical injuries.⁷ The most extreme consequence of IPV is death at the hands of a current or ex-partner, which accounts for nearly half of all female homicide victims.^{8,9} In a national intimate partner femicide study 41% of the women who were killed by partners had been seen in the health care system in the year before they were killed, and the majority of those were seen in emergency departments.¹⁰ In 2003, the National Center for Injury Prevention and Control reported that IPV results in nearly 2 million injuries, more than 555,000 of which required medical attention and more than 145,000 hospitalizations.¹¹ Injuries from IPV can range from minor to severe, such as injuries to the head and attempted strangulation injuries.¹² African American women are at increased risk for head injuries due to their exposure to severe violence coupled with inadequate health care access.¹³ Thus, understanding risk factors associated with injuries is critical as injuries have been associated with high direct costs of medical and mental health care, and indirect costs of lost productivity.¹¹ In order to gain a greater understanding of the burden of IPV and associated injury outcomes on women of African descent, the purpose of this study was to: 1) examine differences in injury prevalence by recent (past two year) experiences of IPV and 2) assess the associations between IPV and injury outcomes, including hospitalization and emergency department visits among women of African descent in Baltimore, MD and the USVI.

Methods

Study Design

A multi-site, case-control study of abuse and associated physical and mental health outcomes was conducted in Baltimore, MD and St. Thomas and St. Croix, USVI. Ethical review was conducted by Institutional Review Boards at the Johns Hopkins University, the University of the Virgin Islands and the National Institute on Minority Health and Health Disparities. A Certificate of Confidentiality was obtained to protect sensitive participant information.

Recruitment

Between 2009 and 2011, women were recruited from family planning, prenatal and primary care clinics in Baltimore, MD and the USVI. Women were approached in the waiting room and asked if they would like to participate in a “women’s health, safety and clinic use study.” Interested women were assessed for eligibility in private clinic rooms before providing written consent. Women were eligible to participate if they self-identified as being of African descent, were between the ages of 18 and 55, and reported having an intimate relationship within the past two years. Women who spoke English or Spanish were invited to participate in the USVI, while in Baltimore inclusion was limited to English-speaking women.

Data Collection

Data were collected using an audio computer-assisted self-interview (ACASI) system. Research assistants were available for participants during the survey if needed, but the system allowed women with various literacy levels to complete the survey without assistance and protected participant confidentiality. The system also alerted research assistants to immediate safety concerns including women who had risk factors for suicide and those who scored in the “severe” and “extreme” categories on the Danger Assessment (DA).^{8,9} Protocols for brief assessment and referral for suicide and safety were maintained throughout data collection. At the conclusion of the interview, women were given a \$20 gift card and list of domestic violence related resources in the local community.

Case-Control Sampling

Women who consented to participate were first screened via the ACASI system to determine if they had a history of IPV. Measures used to assess for IPV were the Abuse Assessment Screen (AAS) and the Women’s Experiences of Battering Scale (WEB).^{14,15} Controls were defined as women who reported no physical, sexual or psychological abuse by any partner or ex-partner during their lifetime (n=358). Cases were women who reported lifetime IPV, further divided into one of three mutually exclusive categories: 1) past-two year intimate partner physical and/or sexual violence (with or without psychological abuse) (n=380); 2) intimate partner physical or sexual violence (with or without psychological abuse) more than 2 years ago (n=51); 3) lifetime psychological abuse without physical or sexual abuse (n=112). For this analysis we will focus on the 380 women in the first case category, those who reported recent (past two year) physical or sexual violence and the 358 control women who reported no violence or abuse history.

Measures

Demographics included age, education, marital status, insurance, employment, children, and current pregnancy. Substance abuse was measured with a single question regarding past year misuse of prescription medications or use of “street drugs.” Measures of violence included the AAS, WEB, DA and Severity of Violence Against Women Scale (SVAWS).^{9,15–18} Injury was measured using the Miller Abuse Physical Symptom and Injury Scale (MAPSAIS).¹⁹ MAPSAIS includes 13 injury items along with 44 symptom items, 12 of which were included in this analysis (see Table 1 for the included MAPSAIS injury

variables). Miscarriage and stillbirth, while considered injury outcomes on the MAPSAIS, were not included in this analysis as it is less clearly an injury more appropriately analyzed with other obstetric and neonatal outcomes.

Analysis

Descriptive and bivariate analyses were used to examine participant demographic characteristics. All 12 injuries were recoded from three frequency categories into binary categories. The limited number of participants endorsing multiple occurrences of individual injury categories in the past year would not have allowed a robust analysis. A multiple injury variable was created by totaling the scores in the original 12 variables and dichotomizing zero or one reported past year injury versus two or more reported past year injuries. Two of the dichotomized individual injury variables (hospitalization for injury and emergency department visits) and the multiple injury outcome were chosen as primary outcomes. Logistic regression was used to examine the association between recent IPV and other covariates associated with each injury outcome. All variables reaching significance at the $p<0.05$ level for any of the three outcomes were considered for inclusion in the multivariate model. Covariates were retained in all three models if they achieved significance at $p<0.05$ in any of the models. Data were analyzed using SPSS Version 20.²⁰ Data for the Baltimore and USVI sites were analyzed both in combined and separate regression models.

Results

Of 1579 women screened, 1315 were eligible to participate and 901 consented to participate and completed the full survey. Of these, 738 women reported either recent abuse ($n=380$) or were never abused controls ($n=358$) and are included in the presented analyses. The majority of participants (78%) were between the ages of 18 and 35. Median age was 27 (IQR 22–35). Overall, most women in the sample (79%) had at least a high school education, and approximately half (48%) were employed outside the home at the time of the survey. Women in the USVI were more likely than women in Baltimore to have completed high school (84% vs. 71%; $p<0.001$) and to be employed (54% vs. 41%; $p<0.001$). Most participants (72%) reported having children under 18 at home, while 30% of women in the sample reported being currently pregnant; these numbers were similar at both sites. Past year drug use was reported by 10% of the overall sample, with no significant difference between the two sites.

For each of the individual injury outcomes there was less than 2% missing data. Individuals with missing injury data outcome were excluded from analysis for the particular outcome. Bivariate analysis of each of the 12 individual injury outcomes showed significant differences between rates of reported injuries and having experienced recent IPV (Table 1). Several of the head and facial injury categories had unadjusted odds ratios (ORs) of 3 or more. Head injuries with loss of consciousness were 7.21 times more likely in women reporting recent IPV than those who did not (95% CI: 2.79–18.61, $p<0.001$). The differences in reported head injuries with damage to the ear (OR: 4.76, 95% CI: 1.80–12.62, $p=0.002$), injuries to the jaw (OR: 4.45, 95% CI: 1.49–13.28, $p=0.007$) or eye injuries (OR: 3.70, 95%

CI 2.11–6.48, $p < 0.001$) were also striking. Of the three selected outcomes, emergency department use, hospitalization as a result of injury and multiple injuries, only emergency department use was associated with site, with 57% of women in Baltimore reporting past year emergency department use compared to 44% of women in the USVI ($X^2 = 11.4$, $p = 0.001$).

Results from the combined site logistic regression models (Table 2) showed that for all three outcomes, recent IPV was associated with the injury outcome. For emergency department use, site was associated, with women in USVI having a 43% decreased odds of emergency department use (AOR: 0.57, 95% CI: 0.41–0.78). Drug use was associated with both hospitalizations (AOR: 2.04, 95% CI: 1.22–3.43) and multiple injuries (AOR: 2.15, 95% CI: 1.27–3.65) while being employed offered a protective effect against multiple injuries (AOR: 0.68, 95% CI: 0.50–0.93).

Variations in association were noted in site specific models (Table 2). In the USVI, IPV remained associated with all three injury outcomes, while in Baltimore it failed to reach significance in the emergency department use and hospitalization models. Current employment remained protective of the multiple injuries outcome only in Baltimore (AOR: 0.56, 95% CI: 0.34–0.93), while drug use remained associated with hospitalizations in the USVI (AOR: 2.33, 95% CI: 1.12–4.84) and multiple injuries in Baltimore (AOR: 2.36, 95% CI: 1.09–5.07). Two variables that did not reach significance in the combined model became significant when the site data were analyzed separately. Having children living in the home was associated with an increased odds of emergency department use (AOR: 1.98, 95% CI: 1.18–3.33) and multiple injuries (AOR: 1.78, 95% CI: 1.03–3.10) in Baltimore. A current pregnancy was associated with increased odds of hospitalization in the USVI (AOR: 1.71, 95% CI: 1.03–2.85).

Discussion

The results presented here provide evidence that IPV is an important factor in injury rate and severity, increasing the risk of multiple injuries by almost 3 (AOR = 2.75, 95% CI: 1.98–3.81). Our sample, particularly the Baltimore sub-group, had a high rate of emergency department use. The CDC estimated in 2007 that approximately 20% of the overall population had visited an emergency department in the past year and found a higher rate of emergency department use in non-Hispanic Blacks and those living below the poverty level.²¹ Overall, 48% of our sample reported emergency department use in the past year (54% of abused women and 45% of those never abused). IPV increased the odds of emergency department use in the USVI by an AOR of 2.37 (95% CI: 1.58–3.57). The lack of a significant relationship between IPV and emergency department use in the Baltimore sample may be related to the impact of an inner city environment on women's health and healthcare use behaviors.²¹ Women living in Baltimore were less likely to report employment or having graduated from high school which may lead to increased risk of all types of injury and emergency department utilization.

The association of drug use with hospitalizations and multiple injuries is consistent with literature on injuries and on drug abuse as both a precursor and consequence of IPV.^{22–24}

However, since only 10% of the women in our sample were drug abusers, drugs are not the main driver of the association of IPV and hospitalizations and injuries. The finding of having children less than 18 in the home being associated with multiple injuries and emergency department use is explained by our analysis of prevalence, where we found that having children less than 18 in the home was strongly (AOR = 2.45) associated with recent IPV in Baltimore.⁴ In the prevalence analysis employment was not protective against IPV so why it is protective against multiple injuries is not immediately apparent.

Limitations

While this study presents information regarding risk factors for injuries, hospitalization and emergency department use in a sample of African American and African Caribbean women, there are limitations that must be addressed. The cross-sectional design does not allow causal inferences to be made. Additionally, while the MAPSAIS measures injuries that have been previously associated with IPV, it does not include items to determine if the reported injuries and outcomes were the direct result of IPV. Collecting historical self-report data presents an opportunity for recall bias.

Strengths

This is one of the first studies to examine IPV in the USVI and in a population that is of African descent. The design allows for comparisons between women who reported experiencing recent IPV and those who do not. Additionally, women who reported past two year violence by “someone close to them” other than an intimate partner (i.e. friend, another family member) were excluded from the control group to ensure that other types of interpersonal violence would not be present and that the control group integrity was maintained. While the use of ACASI technology cannot protect against recall bias, it does provide a level of anonymity that limits the effects of social desirability bias in self-reporting.

Implications for Emergency Nurses

Our results provide evidence that women who have experienced IPV are more likely to seek care not only in emergency department settings, but to be hospitalized for injuries as well as to report multiple injuries. Injuries from IPV tend to be repeated, and importantly, abused women who are killed are often seen in an emergency department in the year before the homicide.¹⁰ Emergency nurses can play a crucial role in assuring that screening protocols are in place and in successfully implementing the screening with patients, further assessing for under recognized injuries (e.g. recurrent head injuries, strangulations) and making sure women understand their options for addressing the issue of IPV (including assisting women in connecting with desired IPV resources such as a national hotline, local shelter or the police department).²⁵ While universal screening is recommended, our results regarding the prevalence of head and facial injuries in recently abused women also suggests that a more focused assessment about whether or not a husband, boyfriend, partner or ex caused the injury for women presenting with these chief complaints.²⁶ Particularly, nurses may ensure that women who may initially present with alterations in consciousness or memory are evaluated for IPV in a safe and private setting once they are medically able to participate in

screening. Various modalities of screening have been shown to help identify women experiencing abuse including in-person questionnaires as well as paper or computer-based forms.^{27–29} Technology-based screening methods may also offer additional capabilities such as automatic links to resources or referrals for social work services.²⁸ Work completed by Glass and colleagues, also suggests that computer-based resources can be used to assist abused women in decision-making and safety seeking.³⁰ Incorporating these technological safety nets may help to increase nurse and providers comfort levels with asking about and addressing IPV in their patients.

Conclusions

Hospitals should implement IPV screening, intervention and referral services for all patients who are admitted or seeking emergency care for injuries. Screening to identify women who are experiencing IPV has been shown as a safe practice even in the sometimes overwhelmingly busy setting of an emergency department.^{26,28} This is supported by several national nursing and medical organizations that recommend universal screening for IPV, including the United States Preventive Service Task Force and Institute of Medicine.^{26,31–34} Continued education of all health care providers in screening, brief intervention and referrals should be a priority moving forward. Further research is needed to develop and test hospital and emergency department-based IPV screening and interventions that can be easily implemented and incorporated into busy hospital routines. Computer-based methods for screening and referrals are an area in which additional research.

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Table 1

Reported injury outcomes by recent intimate partner violence status

	Recent IPV [n=380] n (%)	No IPV [n=358] n (%)	OR	95% CI	p value
hospitalized for injuries	113 (32)	68 (18)	2.01	1.42–2.84	<0.001
taken/went to the ER	195 (55)	166 (45)	1.46	1.09–1.96	0.011
injuries requiring surgery	51 (14)	25 (7)	2.09	1.27–3.46	0.004
injuries requiring stitches	60 (17)	27 (7)	2.45	1.51–3.98	<0.001
broken bones	34 (9)	11 (3)	3.10	1.55–6.22	0.001
facial injuries (eg black eye, bloody nose)	82 (23)	16 (4)	6.46	3.65–11.45	<0.001
other bruises on the body	137 (38)	23 (6)	10.69	6.44–17.75	<0.001
eye injuries	59 (16)	17 (5)	3.70	2.11–6.48	<0.001
head injuries with loss of consciousness	35 (10)	5 (1)	7.21	2.79–18.61	<0.001
head injury with damage to the ear	24 (7)	5 (1)	4.76	1.80–12.62	0.002
dental injuries	56 (16)	35 (9)	1.70	1.08–2.67	0.022
broken or dislocated jaw	18 (5)	4 (1)	4.45	1.49–13.28	0.007

Table 2

Risk factors for past year emergency department visits, hospitalizations and multiple injuries.

	Emergency Department Use AOR (95% CI)			Hospitalization AOR (95% CI)			Multiple Injuries AOR (95% CI)		
	Combined (n=727)	USVI (n=425)	Baltimore (n=302)	Combined (n=727)	USVI (n=425)	Baltimore (n=302)	Combined (n=720)	USVI (n=421)	Baltimore (n=299)
Site: USVI	0.57 (0.41–0.78)	-	-	0.75 (0.52–1.08)	-	-	0.75 (0.54–1.05)	-	-
Recent IPV	1.59 (1.17–2.62)	2.37 (1.58–3.57)	0.85 (0.52–1.40)	2.12 (1.47–3.04)	2.62 (1.57–4.38)	1.67 (0.98–2.87)	2.75 (1.98–3.81)	3.61 (2.33–5.61)	1.86 (1.12–3.06)
Employed	0.76 (0.57–1.03)	0.76 (0.51–1.13)	0.69 (0.43–1.12)	0.95 (0.67–1.36)	1.27 (0.79–2.03)	0.64 (0.37–1.11)	0.68 (0.50–0.93)	0.75 (0.49–1.14)	0.56 (0.34–0.93)
Has child(ren)	1.36 (0.97–1.90)	1.08 (0.69–1.69)	1.98 (1.18–3.33)	0.92 (0.62–1.35)	1.04 (0.61–1.77)	0.87 (0.49–1.56)	1.22 (0.85–1.74)	0.94 (0.59–1.51)	1.78 (1.03–3.10)
Pregnant	1.05 (0.76–1.47)	0.94 (0.60–1.47)	1.20 (0.73–1.98)	1.28 (0.88–1.85)	1.71 (1.03–2.85)	0.93 (0.53–1.62)	0.84 (0.60–1.19)	0.81 (0.50–1.30)	0.85 (0.51–1.42)
Drug Use	1.59 (0.93–2.62)	2.10 (1.00–4.43)	1.11 (0.53–2.32)	2.04 (1.22–3.43)	2.33 (1.12–4.84)	1.72 (0.82–2.87)	2.15 (1.27–3.65)	1.87 (0.89–3.91)	2.36 (1.09–5.07)

AOR: Adjusted odds ratio; CI: Confidence interval