RISK FACTORS FOR INTIMATE PARTNER VIOLENCE AND ASSOCIATED INJURY AMONG URBAN WOMEN

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ABSTRACT: The objective of this study was to identify risk factors for abuse and IPV related injury among an urban population. This study reports an additional analysis of a case-control study conducted from 1994 to 2000 in 11 USA metropolitan cities where of 4746 women, 3637 (76.6%) agreed to participate. Control group women (N = 845) were identified through random digit dialing. Significant risk factors for abuse included women's young age (adjusted odds ratio (AOR) 2.05 p = .011), being in fair or poor mental health (AOR 2.65 p < .001), and former partner (AOR 3.33 p < .001). Risk factors for partners perpetrating IPV included not being a high school graduate (AOR 2.06 p = .014), being in fair or poor mental health (AOR 6.61 p < .001), having a problem with drug (AOR 1.94 p = .020) or alcohol use (AOR 2.77 p = .001), or pet abuse (AOR 7.59 p = .011). College completion was observed to be protective (AOR 0.60, p < .001). Significant risk factors for injury included partner's fair or poor mental health (AOR 2.13, p = .008), suicidality (AOR 2.11, p = .020), controlling behavior (AOR 4.31, p < .001), prior domestic violence arrest (AOR 2.66, p = .004), and relationship with victim of more than 1 year (AOR 2.30, p = .026). Through integration of partner related risk factors into routine and/or targeted screening protocols, we may identify more abused women and those at greater risk of abuse and injury.

KEY WORDS: women; intimate; partner; violence.

INTRODUCTION

Intimate partner violence (IPV) is a major cause of morbidity and mortality for women in the United States (US). According to the National

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Violence Against Women Survey (NVAWS) approximately 25.5% of US women reported IPV (physical or sexual assault) or stalking at least once in their lifetime.[1] Past year IPV prevalence in population- based surveys has ranged from 1.5% to 13.6%.[1,2] According to estimates from the National Crime Victimization Survey (NCVS), 20% of the violent crime committed against women between 1993 and 2001was attributed to IPV and at least one-third of female homicide victims were killed by an intimate partner.[3] IPV is currently the most common cause of nonfatal injury in the US.[4] Between 1992 and 1996, 36% of emergency department visits made by women were related to IPV.[5] Our definition of intimate partner violence is taken from a consensus panel for the US. Centers for Disease Control and Prevention (CDC) as follows: physical and/or sexual assault or threats of assault against a married, cohabiting, or dating current or estranged intimate partner by the other partner, also including emotional abuse and controlling behaviors in a relationship where there has been physical and/ or sexual assualt.[6]

Identifying abused women is increasingly being acknowledged as a potential way to decrease the morbidity and mortality associated with IPV. Thus, identifying risk factors for IPV is an important public health endeavor. In population and clinic based samples, the following factors differentiated physically abused from non-abused women: educational achievement discordance,[7] specifically when the woman has a higher education than her partner, cohabiting,[2] unmarried,[2,7] African American,[2] young age,[7] low income without health insurance or Medicaid,[7] cigarette use,[7] history of physical abuse, self perceptions of poor physical and mental health[8] and children in the home.[8]

Thompson et al.[8] sought to identify factors associated with *injury* of a woman due to abuse by her partner by comparing risk factors for IPV in two national surveys, the Canadian Violence Against Women Survey (CVAWS) and the NVAWS. Results indicated that children witnessing partner violence, partner's alcohol use, history of prior victimization by the same partner and the woman reporting fear of injury or death were associated with physical injury. However, only two factors, partner's alcohol use and chronic victimization by the same partner, were independently associated with injury in both data sets.

As an increasing number of professional association guidelines and health care agencies and facilities implement targeted and universal IPV screening or routine inquiry,[9,10] it is helpful to be able to offer empirically validated profiles of women likely to suffer abuse, and the partners likely to perpetrate it. It is particularly important that such results emanate from population-based surveys as they are more likely to be generalizable to the

population of women in the US. Identifying risk factors for abuse and injury resulting from abuse is critical for designing interventions to prevent, screen, and treat IPV. Thus, the objective of this analysis is to identify risk factors for IPV and IPV related injury among an urban random sample of women who were the control group of a case control study of intimate partner homicide.

METHODS

Setting and Participants

The case control study of intimate partner homicide was conducted in 11 geographically dispersed US cities from 1994 to 2000.[11] Cases were women who had survived an attempted homicide (n = 183) or proxies of women who did not (typically mothers, sisters, or friends) (n = 220). A control group was also included to compare with the cases. Women in the control group were identified through random stratified digit dialing from the same metropolitan areas as the femicide cases. A total of 4746 women met the age (18–50) and relationship criteria (intimate partner within the past year) and were read the full consent statement as approved by the Johns Hopkins University Institutional Review Board (IRB) as well as a local IRB at each site. Of these, 3637 (76.6%) agreed to participate. A modified version of the Conflict Tactics Scale[12] was used to identify abused women. Women who reported physical and/or sexual assault or being threatened with a weapon during a current or past relationship within the past 2 years constituted the abused group (n = 427). An equal number of nonabused women comprised the control group (n = 418), randomly selected from women who reported no abuse during the past 2 years.

Assessments

All controls interviewed included questions on sociodemographic factors, relationship characteristics, weapon availability, drug use, psychological abuse, perceived mental health of self and partner, and prior arrest of partner, as well as responses to standardized instruments such as the Danger Assessment[13] and the HARASS.[14] Additionally, the same five questions used in the CVAWS[8] to evaluate emotional abuse were used in this study. A safety protocol was implemented, adopted from the telephone safety domestic violence protocol developed by Holly Johnson that includes providing domestic violence resources for all participants.[15] This analysis is

a comparison of the abused with the nonabused women in the control group.

Statistical Analysis

Data were analyzed with STATA, version 8.[16] Univariate and bivariate analyses were conducted to determine differences between abused and non-abused women including t-tests for continuous variables and Chi-square tests for categorical variables. Backward stepwise logistic regression analysis was then utilized for those variables noted to be statistically significant at the p ≤ 0.10 level in the bivariate analyses for inclusion in the multivariate model. Missing data (~9%) was handled by substituting mean or median values as appropriate. This was not done for the injury analysis.

RESULTS

The prevalence of intimate partner violence in the sample was 9.8% (n = 356). Most of the women in the sample were over 25 years of age (as were their partners), unmarried, living without children in the home, a high school graduate, and employed full time. Approximately half (53%) of the sample was White, 19% African American, 19% Hispanic, and 8% of ''other'' ethnic background. The association of abuse status and woman-level, partner-level, and relationship-level characteristics hypothesized to be related to IPV from prior research were investigated through bivariate analysis. All of the woman-level characteristics, and all but one of the partner-level characteristics were significantly associated with abuse. The only partner-level characteristic not associated with abuse was history of ever being in the military. Similarly, the only relationship-level characteristic not associated with abuse was the presence of a biological child of the woman but not the partner's (stepchild) in the home. Table 1 illustrates the findings of the bivariate analyses.

In the multivariate analysis, two characteristics of the women were independently associated with abuse: younger age and fair or poor mental health. Women who were less than 26 years of age were about twice as likely to be abused. Women who reported fair or poor mental health were more than twice as likely to be abused compared with the non-abused group. In contrast, five partner characteristics were associated with abuse, including not being a high school graduate (adjusted odds ratio (AOR) 2.05), woman's perception that the partner's mental health was fair or poor (AOR 6.61), woman's perception of partner's problem drug (AOR 1.94) or

TABLE 1

Associations by Abuse Group

	N (%) Total	Abuse (n = 427) n (%)	Non-abused (n = 418) n (%)	p value
Woman's Characteristics n = 845				
Age				<.001
18–25 years	219 (25.92)	154 (36.07)	65 (15.55)	
26–50 years	626 (74.08)	273 (63.93)	353 (84.45)	
Employment				.017
Full time (reference)	494 (58.6)	233 (54.57)	261 (62.74)	
Part time	147 (17.44)	89 (2.84)	58 (13.94)	
No job	204 (24.14)	105 (24.59)	99 (23.68)	
Education				<.001
Not high school graduate	101 (12.01)	70 (16.51)	31 (7.43)	
High school graduate	740 (87.99)	354 (83.49)	386 (92.57)	
Race/Ethnicity				.002
Black	161 (19.24)	96 (22.80)	65 (15.63)	
White (reference)	447 (53.41)	200 (47.51)	247 (59.38)	
Hispanic	160 (19.12)	92 (21.85)	68 (16.35)	
Other	69 (8.24)	33 (7.84)	36 (8.65)	
Individual Income				<.001
≤ $20,000	416 (49.23)	254 (59.48)	162 (38.76)	
>$20,000	429 (50.77)	173 (40.52)	256 (61.24)	
Health				<.001
Excellent/Good	730 (86.39)	345 (80.80)	385 (92.11)	
Fair/Poor	115 (13.61)	82 (19.20)	33 (7.89)	
Mental Health				<.001
Excellent/Good	674 (79.76)	288 (67.45)	386 (92.34)	
Fair/Poor	171 (20.24)	139 (32.55)	32 (7.66)	
Problem Drinker	37 (4.38)	30 (7.03)	7 (1.67)	<.001
Drug Use	85 (10.08)	57 (13.38)	28 (6.71)	.001
Partner's Characteristics				
Age				<.001
18–25 years	180 (21.3)	135 (31.62)	45 (10.77)	
26–50 years	665 (78.7)	292 (68.38)	373 (89.23)	

TABLE 1 *(Continued)*

	N (%) *Total*	*Abuse* *(n = 427)* *n (%)*	*Non-abused* *(n = 418)* *n (%)*	*p value*
Employment				<.001
Full time (reference)	661 (79.16)	284 (67.78)	377 (90.63)	
Part time	79 (9.46)	52 (12.41)	27 (6.49)	
No job	105 (12.43)	91 (21.31)	14 (3.35)	
Education				<.001
Not high school graduate	146 (17.85)	108 (26.47)	38 (9.27)	
High school graduate	672 (82.15)	300 (73.53)	372 (90.73)	
College graduate	326 (38.58)	109 (33.54)	217 (66.56)	
Race/Ethnicity				<.001
Black	185 (32.08)	108 (25.47)	77 (18.6)	
White (reference)	440 (52.51)	192 (45.28)	248 (59.9)	
Hispanic	158 (18.85)	93 (21.93)	65 (15.7)	
Other	55 (6.56)	31 (7.31)	24 (5.8)	
Health				<.001
Excellent/Good	719 (85.09)	330 (77.28)	389 (93.06)	
Fair/Poor	126 (14.91)	97 (22.72)	29 (6.94)	
Mental Health				<.001
Excellent/Good	597 (70.65)	210 (49.18)	387 (92.58)	
Fair/Poor	248 (29.35)	217 (50.82)	31 (7.42)	
Problem Drinker	159 (18.84)	133 (31.15)	26 (6.24)	<.001
Drug Use	157 (18.6)	130 (30.44)	27 (6.46)	<.001
Partner ever in military	127 (15.17)	69 (16.35)	58 (13.98)	.338
Partner ever arrested for violence outside home	55 (6.7)	46 (11.27.)	9 (2.18)	<.001
Partner ever had nonviolent arrest	113 (13.76)	84 (20.59)	29 (7.02)	<.001
Gun in home	141 (16.69)	68 (15.93)	73 (17.46)	.549
Relationship Characteristics				
Relationship Status				<.001
Current Partner	578 (68.4)	220 (51.52)	358 (85.65)	
Former Partner	267 (31.6)	207 (48.48)	60 (14.35)	
Relationship Status: Type				<.001
Husband	340 (40.52)	107(25.30)	233 (56.01)	
Ex-Husband	34 (4.05)	32 (7.57)	2 (.48)	

TABLE 1 *(Continued)*

	N (%) Total	Abuse (n = 427) n (%)	Non-abused (n = 418) n (%)	p value
Boyfriend	217 (225.86)	98 (23.17)	119 (28.61)	
Ex-Boyfriend	132 (15.73)	104 (24.59)	28 (6.73)	
Common law husband	3 (0.36)	2 (0.47)	1 (0.24)	
Ex-Common law husband	5 (0.60)	4 (0.95)	1 (0.24)	
Same-sex partner	12 (1.43)	10 (2.36)	2 (0.48)	
Former Same-sex partner	0	0	0	
Estranged husband*	9 (1.07)	8 (1.89)	1 (0.24)	
Other	87 (10.37)	58 (13.71)	29 (6.97)	
Biological Children in Home	268 (31.79)	112 (26.23)	156 (37.50)	<0.001
Stepchildren in Home	138 (16.35)	78 (18.27)	60 (14.39)	0.128

*(still married, no legal action).

alcohol use (AOR 2.77), or threat or actual abuse of a pet (AOR 7.59). In contrast to the four risk factors, being a college graduate (AOR 0.60) was a protective factor. Only one relationship-level characteristic, the perpetrator being the woman's former partner (AOR 3.33), was associated with abuse. Table 2 illustrates the findings of the multivariate analyses.

Because it is likely that physically abused controls who were also injured may have been experiencing more severe abuse than other physically abused controls, an additional multivariate logistic analysis (not shown), identified factors independently associated with injury among both abused and non-abused controls. The four partner-level factors associated with injury were: suicidality (AOR 2.11, 95% CI 1.13–3.56, p = .020), controlling behavior (AOR 4.31, 95% CI 2.44–7.61, p < .001), fair or poor mental health (AOR 2.13 95% CI 1.22–3.72, p = .008), and prior domestic violence arrest (AOR 2.66, 95% CI 1.36–5.22, p = .004). The one relationship-level factor that was significant was duration of relationship greater than 1 year (AOR 2.30, 95% CI 1.10–4.81, p = .026). No woman-level factor was statistically significant in this analysis.

As expected, the overwhelming majority of the non-abused controls answered ''no'' to almost all of the questions appearing on the Danger Assessment, HARASS, and the emotional abuse questions from the CVAWS.

TABLE 2

Crude and Adjusted ORs for Predictors of Abuse

Characteristics	Crude OR (95%CI)	Adjusted OR (95%CI)	p-value
Woman's Characteristics (n = 845)			
Age			
18–25	3.06 (2.20, 4.26)	2.05 (1.18, 3.57)	.011
26–50	1.0 (Referent)	1.0 (Referent)	
Mental health			
Fair/poor	5.82 (3.85, 8.80)	2.65 (1.59, 4.49)	<.001
Good/excellent	1.0 (Referent)	1.0 (Referent)	
Partner's characteristics			
Education			
<High school	3.52 (2.36, 5.26)	2.06 (1.16, 3.66)	.014
≥High school	1.0 (Referent)	1.0 (Referent)	
College graduate	0.32 (0.24, 0.43)	0.60 (0.37, 0.95)	<.001
Not college graduate	1.0 (Referent)		
Mental health			
Fair/poor	12.90 (8.54, 19.48)	6.61 (4.00, 10.43)	<.001
Good/excellent	1.0 (Referent)	1.0 (Referent)	
Alcohol			
Problem drinker	6.80 (4.35, 10.63)	2.77 (1.60, 4.78)	.001
Not problem drinker	1.0 (Referent)	1.0 (Referent)	
Drug use			
Problem w/drugs	6.59 (4.24, 10.25)	1.94 (1.11, 3.39)	.020
No problem	1.0 (Referent)		
Pets			
Pet abuse	19.15 (4.58, 80.07)	7.59 (1.61, 35.96)	.011
Relationship characteristics			
Former partner	5.61 (4.02, 7.83)	3.33 (2.02, 5.49)	<.001
Current partner	1.0 (Referent)	1.0 (Referent)	

That is, 5.98% of the nonabused women answered ''yes'' to no more than 1 question on the Danger Assessment, for example, ''Is he partner) violently and constantly jealous of you?'' Almost no (.72%) nonabused women answered ''yes'' to no more than 1 question on the HARASS, for example,

''Did he ever follow you or spy on you?'' Finally, 7.42% of the nonabused women answered ''yes'' to no more than 1 question for the emotional abuse CVAWS questions, for example, ''He calls you names to put you down or make you feel bad.'' There were however, particular items from these scales that differentiated injured women from non-injured physically abused controls. Injured women were much more likely to report that their partner made unwanted calls (40% vs. 2%, p < .0001), restricted them from talking with others (63% vs. 3%, p < .0001), wanted to know everything (74% vs. 7%, p < .0001), and called the victim names (33% vs. 3%, p < .0001), as compared with non-injured physically abused women.

DISCUSSION

We found in this study that young women, reporting fair or poor mental health, or women separated from their partners, were more likely to be abused. Perpetrators of IPV were more likely to have not graduated from high school, have problems with drug or alcohol use, be in fair or poor mental health, and have a history of threatened or actual pet abuse. Women whose partners completed college were significantly less likely to be abused. These findings generally concur with those from the NVAWS[1] and the Behavioral Risk Factor Surveillance System (BRFSS),[7] and many other population-based and clinical studies.[2,17,18] In particular, there was overlap with our findings with respect to the following factors: relatively young age, separated or divorced marital status, substance use, and perceptions of poor mental health. As has been pointed out in other studies, since this is cross-sectional data, we do not know if the separation or divorce that is associated with IPV came before the violence or occurred after or both. Similarly, it could be that abused women were more likely to leave their partners, not that ex-partners were more likely to abuse women.

Although our findings of association of pet abuse with IPV has been observed in other investigations,[19–21] ours is the first controlled investigation that we have found. This risk factor is particularly important as Flynn[20] as well as Faver and Strand[21] observed that for some abused women, concern for their pet's welfare delayed their seeking shelter and safety from their abusers. This factor has also been incorporated in some clinical settings as exemplified by Siegel and colleagues who reported use of a brief screen for domestic violence in the pediatric setting that included a question inquiring about pet abuse.[22]

In addition, we found no independent associations between abuse status and presence of a stepchild in the home, as has been found by Daly,

Singh and Wilson.[23] It is important to note that the presence of stepchildren in the home was significantly associated with intimate partner femicide in the larger case-control study from which these data come[11] as was also found by Daly, Wiseman, and Wilson.[24] We also found no independent associations between abuse and race or ethnicity; consistent with findings from the NVAWS[1] and other population- based studies in the US[25–27] as well as the larger parent study when risk of intimate partner femicide was the outcome.[11]

We also found that women whose partners had a prior domestic violence arrest, was in a relationship with their partner for more than 1 year, and who perceived their partner to be controlling, in fair or poor mental health, or suicidal were more likely to be injured compared to physically abused women who were not injured. In our study partner's alcohol problem was not independently associated with injury status unlike the CVAWS[8] and NVAWS.[1] In these studies women were asked about their partner's use of alcohol at the time of abuse and while we also asked women about partner's alcohol use when they were injured in our study, we also asked about their perceptions of their partner's lifetime problematic alcohol use.

In this study, the self-rated mental health of both the woman and her partner were consistently related to abuse and injury status. It is unclear, however, whether mental health status is not a precursor of abuse and/or injury, or if it instead reflects an outcome of being abused and injured. Women's perceptions of poor mental health however, may be a useful marker for case finding. Although some women may not initially disclose their abuse status, they are frequently well-known to the health care system for a myriad of physical and mental health problems known to be associated with abuse.[28] Through careful listening health care providers may suspect abuse based on references she makes about her or her partner's mental health.[29]

The finding that the presence of a gun in the home increased the risk of injury by more than three times for women underscores the danger of guns in cases of domestic violence.[11] Stalking behaviors were also associated with injury demonstrating the importance of assessment for stalking in cases of domestic violence and to consider stalking as a form of IPV.[30–33]

This analysis importantly adds to the body of knowledge from population based studies of the prevalence and risk factors of IPV for women using a population based sampling approach. However, there are also important limitations. One limitation is that all partner-level characteristics were ascertained retrospectively and reported by the woman, not the male partner. However, other studies of abused women, such as both NVAWS[1] and CVAWS[8], have also relied on female partner self-reports on

their male partners' characteristics and behaviors. Further, it is not well known what impact partner non-participation has on prevalence of risk factors for abuse.[34] The findings are also limited to urban women which increased the ethnic diversity of the sample but neglected an important segment of the population, rural women, about which little is known in terms of IPV. Since the questionnaire was designed primarily around risk factors for homicide and near homicide of abused women, important risk factors for IPV were not measured such as history of childhood abuse.

Nonetheless, the findings reported here have implications for current abuse screening practice in health care and social service settings. Among the woman characteristics, perceived mental health had the strongest relationship to abuse along with a similar strength of association to that of being separated from their abusive partner. Routine assessment for IPV should not be limited to women asserting current involvement in a relationship, particularly if they report poor mental health. Our findings that it is characteristics of the partner more so than the victim that are most strongly and most often associated with abuse reinforces the importance of focusing not primarily on the woman or her relationship, but on her partner's characteristics as risk factors for abuse in terms of both identification and intervention. Focusing on the partner accomplishes two things: (1) it more accurately identifies women who are being abused, and (2) it communicates that it is her partner who for the most part is in control of and responsible for the abuse, not her. By integrating partner-level characteristics into routine and/or targeted assessment protocols, we may identify more abused women and women at greater risk of abuse and injury.

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