Risk Factors for Femicide in Abusive Relationships: Results From a Multisite Case Control Study

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Objectives. This 11-city study sought to identify risk factors for femicide in abusive relationships.

Methods. Proxies of 220 intimate partner femicide victims identified from police or medical examiner records were interviewed, along with 343 abused control women.

Results. Preincident risk factors associated in multivariate analyses with increased risk of intimate partner femicide included perpetrator's access to a gun and previous threat with a weapon, perpetrator's stepchild in the home, and estrangement, especially from a controlling partner. Never living together and prior domestic violence arrest were associated with lowered risks. Significant incident factors included the victim having left for another partner and the perpetrator's use of a gun. Other significant bivariate-level risks included stalking, forced sex, and abuse during pregnancy.

Conclusions. There are identifiable risk factors for intimate partner femicides. (*Am J Public Health.* 2003;93:1089–1097)

Femicide, the homicide of women, is the leading cause of death in the United States among young African American women aged 15 to 45 years and the seventh leading cause of premature death among women overall.[1] American women are killed by intimate partners (husbands, lovers, ex-husbands, or ex-lovers) more often than by any other type of perpetrator.[2–4] Intimate partner homicide accounts for approximately 40% to 50% of US femicides but a relatively small proportion of male homicides (5.9%).[1,5–10] The percentage of intimate partner homicides involving male victims decreased between 1976 and 1996, whereas the percentage of female victims increased, from 54% to 72%.[4]

The majority (67%–80%) of intimate partner homicides involve physical abuse of the female by the male before the murder, no matter which partner is killed.[1,2,6,11–13] Therefore, one of the major ways to decrease intimate partner homicide is to identify and intervene with battered women at risk. The objective of this study was to specify the risk factors for intimate partner femicide among women in violent relationships with the aim of preventing this form of mortality.

METHODS

An 11-city case–control design was used; femicide victims were cases (n=220), and randomly identified abused women residing in the same metropolitan area were control women (n=343). Co-investigators at each site collaborated with domestic violence advocacy, law enforcement, and medical examiner offices in implementing the study. Sampling quotas for cases and control women in each city were proportionately calculated so that the cities with the highest annual femicide rates included the largest number of cases and control women.

Femicide Cases

All consecutive femicide police or medical examiner records from 1994 through 2000 at each site were examined to assess victim–perpetrator relationships. Cases were eligible if the perpetrator was a current or former intimate partner and the case was designated as "closed" by the police (suicide by the perpetrator, arrest, or adjudication, depending on the jurisdiction). Records were abstracted for data specific to the homicide.

At least 2 potential proxy informants, individuals knowledgeable about the victim's relationship with the perpetrator, were identified from the records. The proxy who, in the investigator's judgment, was the most knowledgeable source was then sent a letter explaining the study and including researcher contact information. If no communication was initiated by the proxy, study personnel attempted telephone or (in the few cases in which no telephone contact was possible) personal contact.

If the first proxy was not knowledgeable about details of the relationship, she or he was asked to identify another willing potential proxy informant. When a knowledgeable proxy was found, informed consent was obtained. In 373 of the 545 (68%) total femicide cases abstracted, a knowledgeable proxy was identified and located. In 82% (307/373) of these cases, proxies agreed to participate. Two exclusion criteria, age (18–50 years) and no previous abuse by the femicide perpetrator, resulted in the elimination of 87 additional cases (28.3% of 307 cases), with 59 (19.2% of 307 cases) eliminated solely as a result of the latter criterion.

Researchers and doctoral students experienced in working with victims of domestic violence conducted telephone or in-person interviews in English or Spanish; interviews were 60 to 90 minutes in duration. Both proxies and abused control women were excluded if they could speak neither English nor Spanish.

Abused Control Women

Stratified random-digit dialing (up to 6 attempts per number) was used to select women aged 18 to 50 years who had been involved "romantically or sexually" in a relationship at some time in the past 2 years in the same cities in which the femicides occurred. A woman was considered "abused" if she had been physically assaulted or threatened with a weapon by a current or former intimate partner during the past 2 years; we

identified episodes of abuse with a modified version of the Conflict Tactics Scale with stalking items added.[11,14]

English- and Spanish-speaking telephone interviewers employed by an experienced telephone survey firm completed sensitivity and safety protocol training.[15] A total of 4746 women met the age and relationship criteria and were read the consent statement. Among these women, 3637 (76.6%) agreed to participate, 356 (9.8%) of whom had been physically abused or threatened with a weapon by a current or recent intimate partner. Thirteen abused control women were excluded from the analysis because they reported that the injuries from their most severe incident of abuse were so severe that they thought they could have died.

Risk Factor Survey Instrument

The interview included previously tested instruments, such as the Danger Assessment,[16,17] and gathered information on demographic and relationship characteristics, including type, frequency, and severity of violence, psychological abuse, and harassment; alcohol and drug use; and weapon availability. The Danger Assessment had been translated to and validated in Spanish in earlier research; the remainder of the survey was translated and back-translated by our Spanish-speaking interviewers and by project staff in Houston, Los Angeles, and New York. A factor analysis of the risk items was used in constructing scales measuring partners' controlling and stalking behaviors. Each scale was internally consistent (α=.83 and .75, respectively).

Data Analysis

Logistic regression was used to estimate the independent associations between each of the hypothesized risk factors and the risk of intimate partner femicide. Because the importance of certain risk factors may not be detected when their effects are mediated by more proximal risk factors, we sequentially added blocks of conceptually similar explanatory variables along a risk factor continuum ranging from most distal (demographic characteristics of perpetrators and victims) to most proximal (e.g., weapon used in the femicide or most serious abuse incident). Variables not significantly associated with femicide risk were dropped from subsequent models. Model coefficients were exponentiated so that they could be interpreted as adjusted odds ratios (ORs).

RESULTS

Demographic, background, and relationship variables that differentiated case women from control women in bivariate analyses are presented in Tables 1 and 2. Table 3 displays findings from the series of logistic regression models. The strongest sociodemographic risk factor (model 1) for intimate partner femicide was the abuser's lack of employment (adjusted OR=5.09; 95% confidence interval [CI]=2.74, 9.45). Instances in which the abuser had a college education (vs a high school education) were protective against femicide (adjusted OR=0.31; 95% CI=0.12, 0.80), as were instances in which the abuser had a college degree and was unemployed but looking for work. Race/ethnicity of abusers and victims was not independently associated with intimate partner femicide risk after control for other demographic factors.

When additional individual-level risk factors for homicide were added to the model (model 2), both abuser's access to a firearm (adjusted OR=7.59; 95% CI=3.85, 14.99) and abuser's use of illicit drugs (adjusted OR=4.76; 95% CI=2.19, 10.34) were strongly associated with intimate partner femicide, although the abuser's excessive use of alcohol was not. Although the abuser's access to a firearm increased femicide risk, victims' risk of being killed by their intimate partner was lower when they lived apart from the abuser and had sole access to a firearm (adjusted OR=0.22). Neither alcohol abuse nor drug use by the victim was independently associated with her risk of being killed.

Relationship variables were added in model 3. Never having lived with the abusive partner significantly lowered women's risk of femicide (OR=0.39; 95% CI=0.16, 0.97). Having been separated from an abusive partner after living together was associated with a higher risk of femicide (adjusted OR=3.64; 95% CI=1.71, 7.78), as was having ever left or having asked the partner to leave (adjusted OR=3.19; 95% CI=1.70, 6.02). Having a child living in the home who was not the abusive partner's biological child more than doubled the risk of femicide (adjusted OR=2.23; 95% CI=1.13, 4.39). Addition of the relationship variables resulted in victims' sole access to a firearm no longer being statistically significant and substantially reduced the effects of abuser's drug use.

Variables related to abusive partners' controlling behaviors and verbal aggression were added in model 4. The effects of a highly controlling abuser were modified by whether the abuser and victim separated after living together. The risk of intimate partner femicide was increased 9-fold by the combination of a highly controlling abuser and the couple's separation after living together (adjusted OR=8.98; 95% CI=3.25, 24.83). Femicide risk was increased to a lesser degree when the abuser was highly controlling but the couple had not separated (adjusted OR=2.90; 95% CI=1.41, 5.97) and when the couple had separated after living together but the abuser was not highly controlling (adjusted OR=3.10; 95% CI=1.20, 8.05).

Threatening behaviors and stalking were added in model 5. Abusers' previous threats with a weapon (adjusted OR=4.08; 95% CI=1.91, 8.72) and threats to kill (adjusted OR=2.60; 95% CI=1.24, 5.42) were associated with substantially higher risks for femicide. After control for threatening behaviors, there were no significant independent effects of abusers' drug use (OR=1.64; 95% CI=0.88, 3.04). The effects of high control with separation (adjusted OR=4.07; 95% CI=1.33, 12.4) and access to guns (adjusted OR=5.44; 95% CI=2.89, 10.22), although substantially reduced, remained strong.

Stalking and threats to harm children and other family members were not independently associated with intimate partner femicide risk after variables had been entered in the first models. When variables related to previous physical abuse were included in model 6, previous arrest of the abuser for domestic violence was associated with a decreased risk of intimate partner femicide (adjusted OR=0.34; 95% CI=0.16, 0.73). The association between abusers' use of forced sex on victims and increased intimate partner femicide risks approached statistical significance (adjusted OR=1.87; 95% CI=0.97, 3.63; $P<.07$).

TABLE 1—Sociodemographic Characteristics of Victims and Perpetrators and General Risk Factors for Homicide, by Group

	Victims			Perpetrators		
	Nonfatal Physical Abuse (n = 343)	Homicide (n = 220)	*P*	Nonfatal Physical Abuse (n = 343)	Homicide (n = 220)	*P*
Sociodemographic variables						
Age, y, mean ± SD	30.1 ± 8.6	31.4 ± 7.7	.081	31.2 ± 9.2	34.2 ± 8.7	<.001
Don't know/refused/missing	0	0		4	22	
Race/ethnicity, No. (%)			<.001			<.001
Black/African American	70 (20.6)	104 (47.3)		83 (24.3)	107 (48.9)	
White	157 (46.3)	53 (24.1)		153 (44.7)	49 (22.4)	
Latino/Hispanic	82 (24.2)	53 (24.1)		80 (23.4)	58 (26.5)	
Other	30 (8.9)	10 (4.5)		26 (7.6)	5 (2.3)	
Don't know/refused/missing	4	0		1	1	
Education, No. (%)			<.001			<.001
Less than high school	61 (17.9)	71 (33.2)		92 (28.0)	70 (48.9)	
High school	73 (21.5)	59 (27.5)		91 (27.7)	47 (32.9)	
Some college/trade school	109 (32.1)	68 (31.8)		58 (17.7)	17 (11.9)	
College/trade school	97 (28.5)	16 (7.5)		87 (26.5)	9 (6.3)	
Don't know/refused/missing	3	6		15	77	
Employment, No. (%)			<.001			<.001
Full-time	179 (52.2)	114 (51.8)		229 (68.2)	84 (39.6)	
Part-time	70 (20.4)	31 (14.1)		39 (11.6)	20 (9.5)	
Unemployed, seeking job	40 (11.7)	12 (5.5)		25 (7.4)	13 (6.1)	
Unemployed, not seeking job	54 (15.7)	63 (28.6)		43 (12.8)	95 (44.8)	
Don't know/refused/missing	0	0		7	8	
Income (annual household), $, No. (%)			.005			
Less than 10 000	67 (21.7)	25 (18.8)				
10 000–19 999	49 (15.9)	32 (24.1)				
20 000–29 999	43 (13.9)	20 (15.0)				
30 000–39 999	41 (13.3)	29 (21.8)				
40 000 or more	109 (35.3)	27 (20.3)				
Don't know/refused/missing	34	87				
General violence/homicide risk variables						
Threatened/attempted suicide			.091			.149
Yes	33 (9.6)	12 (5.6)		68 (20.1)	45 (25.0)	
Don't know/refused/missing	0	6		4	40	
Problem alcohol drinker, No. (%)			<.001			<.001
Yes	27 (7.9)	36 (19.1)		106 (30.9)	105 (52.0)	
Don't know/refused/missing	0	32		0	18	
Illicit drug use, No. (%)			.002			<.001
Yes	49 (14.3)	48 (25.3)		101 (30.4)	123 (65.4)	
Don't know/refused/missing	1	30		11	32	
Access to a firearm,[a] No. (%)			.996			<.001
Yes	17 (5.0)	10 (5.0)		82 (23.9)	143(65.0)	
Don't know/refused/missing	2	19		0	0	

Continued

Incident-level variables were added in model 7. Abuser's use of a gun in the worst incident of abuse was associated with a 41-fold increase in risk of femicide after control for other risk factors, this effect apparently mediating the effects of abuser's access to a gun, which was no longer significant. However, previous threats with a weapon continued to be associated with increased femicide risks (OR=4.41; 95% CI=1.76, 11.06).

When the worst incident of abuse was triggered by the victim's having left the abuser for another partner or by the abuser's jealousy, there was a nearly 5-fold increase in femicide risk (adjusted OR=4.91; 95% CI=2.42, 9.96). When the incident was triggered by the victim's having left the abuser for any other reason, femicide risks were also significantly increased (adjusted OR=4.04; 95% CI=1.80, 9.06). These incident-level effects appear to mediate those related to highly controlling abusers and separation after cohabitation.

Each of the models included in Table 3 demonstrated an adequate fit according to Hosmer–Lemeshow[18] goodness-of-fit tests. Model 6 correctly predicted the case status of 73% of the cases and 93% of the control women. Model 7 correctly predicted the case status of 81% of the cases and 95% of the control women.

DISCUSSION

Seventy-nine percent (220/279) of the femicide victims aged 18 to 50 years and 70% of the 307 total femicide cases were physically abused before their deaths by the same intimate partner who killed them, in comparison with 10% of the pool of eligible control women. Thus, our first premise, that physical violence against the victim is the primary risk factor for intimate partner femicide, was upheld. The purpose of this study, however, was to determine the risk factors that, over and above previous intimate partner violence, are associated with femicide within a sample of battered women. Our analysis demonstrated that a combination of the most commonly identified risk factors for homicide, in conjunction with characteristics specific to violent intimate relationships, predicted intimate partner femicide risks.

TABLE 3—*Continued*

Victim left or asked abuser to leave	3.20**	2.40**	NS		
Victim–abuser had biological child	NS				
Victim had child by a previous partner in home	2.23**	1.70	1.94*	2.44**	2.35*
Abuser–victim age difference	NS				
Abuser control of victim, verbal aggression					
Calls names		NS			
Not high control and separated after living together		3.10*	3.36*	3.64*	3.10*
High control and not separated after living together		2.90**	2.09*	2.08*	2.40*
High control and separated after living together		8.98***	4.07*	5.52**	3.43*
Abuser threats and stalking					
Threatened to harm children			NS		
Threatened to harm family			NS		
Threatened victim with weapon			4.08***	3.38***	4.41*
Threatened to kill victim			2.60**	3.22**	NS
Stalking			NS		
Physical abuse before worst incident					
Abuse increasing in frequency and severity				NS	
Choked (strangled)				NS	
Forced sex				1.87	NS
Abused when pregnant				NS	
Previous arrest for domestic violence				0.34**	0.31*
Incident-level risk factors					
Abuser used alcohol or drugs					NS
Victim used alcohol or drugs					NS
Abuser used gun					41.38**
Trigger: jealousy/victim left for other relationship					4.91***
Trigger: victim left abuser for other reasons					4.04***

Note. NS = nonsignificant.
*$P < .05$; **$P < .01$; ***$P < .001$.

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Human Participant Protection

Institutional review board approval was obtained from each study site. Informed consent was obtained by telephone from all participants who were interviewed.

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