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 1—*Continued*

Arrest for violent crime, No. (%)			<.001
Yes	38 (11.5)	43 (21.8)	
Don't know/refused/missing	12	23	

Note. The referent time periods for all risk variables were the year previous to the most abusive event for abused control women and the year previous to the femicide for femicide victims.
[a]For abused women, gun access was defined as a woman's sole access to a firearm on the basis of her living apart from her partner and reporting having a gun in the home; gun access for partner was based on reports of his personal ownership of a firearm or living in a household with a firearm.

The model-building strategy we used allowed for consideration of different levels of prevention and the degree to which intimate partner femicides could be prevented by strategies directed at risk factors for homicide in general. For example, our analysis and those of others suggest that increasing employment opportunities, preventing substance abuse, and restricting abusers' access to guns can potentially reduce both overall rates of homicide and rates of intimate partner femicide.

In comparing our femicide perpetrators with other abusive men, we found that unemployment was the most important demographic risk factor for acts of intimate partner femicide. In fact, abuser's lack of employment was the only demographic risk factor that significantly predicted femicide risks after we controlled for a comprehensive list of more proximate risk factors, increasing risks 4-fold relative to the case of employed abusers (model 6). Unemployment appears to underlie increased risks often attributed to race/ethnicity, as has been found and reported in other analyses related to violence.[19,20]

The present results revealed that traits of perpetrators thought to be characteristic of violent criminals in general[21] tended to be no more characteristic of femicide perpetrators than of other batterers. For instance, in contrast to results of previous research comparing abusers and nonabusers,[22] our regression analyses showed that arrests for other crimes did not differentiate femicide perpetrators from perpetrators of intimate partner violence. After controlling for other risk factors, prior arrest for domestic violence actually decreased the risk for femicide, suggesting that arrest of abusers protects against future intimate partner femicide risks. Perpetrator drug abuse significantly increased the risk of intimate partner femicide, but only before the effects of previous threats and abuse were added. Drug abuse, therefore, was associated with patterns of intimate partner abuse that increase femicide risks.

Our iterative model-building strategy also allowed us to observe whether the effects of more proximate risk factors mediate the effects of more distal factors in a manner consistent with theory. For example, the 8-fold increase in intimate partner femicide risk associated with abusers' access to firearms attenuated to a 5-fold increase when characteristics of the abuse were considered, including previous threats with a weapon on the part of the abuser. This suggests that abusers who possess guns tend to inflict the most severe abuse.

However, consistent with other research,[3,23,15,24,25] gun availability still had substantial independent effects that increased homicide risks. As expected, these effects were due to gun-owning abusers' much greater likelihood of using a gun in the worst incident of abuse, in some cases, the actual femicide. The substantial increase in lethality associated with using a firearm was consistent with the findings of other research assessing weapon lethality. A victim's access to a gun could plausibly reduce her risk of being killed, at least if she does not live with the abuser. A small percentage (5%) of both case and control women lived apart from the abuser and owned a gun, however, and there was no clear evidence of protective effects.

Previous arrests for domestic violence was protective against intimate partner femicide in both of the final models. In most of the cities where data were collected, there is a coordinated community response to domestic violence. Under optimal conditions, such responses include adequate and swift adjudication, close supervision of parole outcomes through periodic court reviews or specialized probation programs, ongoing risk management for arrested perpetrators and ongoing safety planning for victims, and close supervision involving sanctions for batterers who drop out of mandated intervention programs.[26] Under these kinds of conditions, arrest can indeed be protective against domestic violence escalating to lethality.

Two relationship variables remained significant throughout the models. Consistent with earlier research,[27,28] instances in which a child of the victim by a previous partner was living in the home increased the risk of intimate partner femicide. Situations in which the victim and abuser had never lived together were protective, validating safety advice that battered women have offered to other battered women in interview studies.[29] Women who separated from their abusive partners after cohabitation experienced increased risk of femicide, particularly when the abuser was highly controlling. Other studies have revealed the same risks posed by estrangement,[30,31] but ours further explicates the findings by identifying highly controlling male partners as presenting the most danger in this situation. At the incident level, we found that batterers were significantly more likely to perpetrate homicide if their partner was leaving them for a different partner.

The bivariate analysis supported earlier evidence that certain characteristics of intimate partner violence are associated with intimate partner femicide, including stalking, strangulation, forced sex, abuse during pregnancy, a pattern of escalating severity and frequency of physical violence, perpetrator suicidality, perception of danger on the part of the victim, and child abuse.[15,16,20,32–37] However, these risk factors, with the exception of forced sex, were not associated with intimate partner femicide risk in the multivariate analysis. Many of these characteristics of abuse are associated with previous threats with a weapon and previous threats to kill the victim, factors that more closely predict intimate partner femicide risks.

This investigation is one of the few studies of intimate partner femicide to include a control population and, to our knowledge,

TABLE 2—Relationship Dynamics, Threatening Behavior, and Abuse Characteristics

	Abused Control Women (n = 343)	Homicide Victims (n = 220)	P
Relationship variables			
Age difference, y, mean ± SD	1.1 ± 5.7	2.9 ± 6.4	.001
Length of relationship, No. (%)			.023
1 month or less	5 (1.5)	0	
1 month to 1 year	94 (27.5)	44 (20.0)	
1 or more years	243 (71.0)	176 (80.0)	
Don't know/refused/missing	1	0	
Relationship partner, No. (%)			.005
Husband	101 (29.7)	85 (39.0)	
Boyfriend	86 (25.3)	65 (29.8)	
Ex-husband	36 (10.6)	20 (9.2)	
Ex-boyfriend	117 (34.4)	48 (22.0)	
Don't know/refused/missing	3	2	
Separated, No. (%)			<.001
Yes	117 (34.9)	101 (55.2)	
Don't know/refused/missing	8	37	
Cohabitation, No. (%)			<.001
Yes	174 (50.7)	81 (45.0)	
In the past year, but not currently	39 (11.4)	68 (37.8)	
Previously, but not in the past year	11 (3.2)	11 (6.1)	
Never	118 (34.7)	20 (11.1)	
Don't know/refused/missing	1	40	
Biological child(ren) of victim and partner living in the household, No. (%)			.034
Yes	98 (28.6)	73 (37.4)	
Don't know/refused/missing	*0*	25	
Biological child(ren) of victim, and not of partner, living in the household, No. (%)			<.001
Yes	60 (17.5)	82 (38.7)	
Don't know/refused/missing	0	8	
Relationship abuse dynamics			
Partner controlling behaviors (score > 3), No. (%)			<.001
Yes	84 (24.5)	145 (65.9)	
Partner called victim names to put her down, No. (%)			<.001
Yes	164 (47.8)	151 (77.8)	
Don't know/refused/missing	0	26	
General violence/homicide risk variables			
Partner violent outside home, No. (%)			<.001
Yes	116 (35.5)	102 (55.7)	
Don't know/refused/missing	16	37	
Partner threatened to kill woman, No. (%)			<.001
Yes	50 (14.6)	142 (73.6)	
Don't know/refused/missing	1	27	
Partner threatened to kill family, No. (%)			<.001
Yes	26 (7.6)	72 (33.8)	
Don't know/refused/missing	0	7	

Continued

the first to examine the connection between relationship variables and specific demographic characteristics of victims and perpetrators. Perhaps the most important limitation of the study is its necessary reliance on proxy respondents for data regarding hypothesized risk factors for intimate partner femicide cases. Because we obtained data from control women directly, rather than from a proxy, observed differences between case and control women may have been wholly or partly attributable to differences in accuracy of reporting between victims and their proxies. To examine this issue, we conducted a small pilot study comparing responses of victims of attempted femicide and responses of their proxy respondents and found good agreement between summed Danger Assessment scores from the 2 sources of information. Furthermore, there was no clear tendency for proxies to underreport or overreport victims' exposure to specific risk factors relative to the self-reports of victims themselves.[35]

It is also possible that some of the women who were excluded from this analysis because of no record of previous physical violence were in fact being abused, unknown to the proxy. However, we found fairly good correspondence with police records of previous domestic violence, and, if anything, we found more knowledge of previous physical abuse among proxies than among police. A related limitation is the relatively large proportion of "don't know" responses from proxies regarding certain hypothesized risk factors of a more personal nature (e.g., forced sex). Our decision to treat these "don't know" responses as representing absence of the "exposure" produced conservative biases in our estimates of relationships with intimate partner femicide risks. Therefore, we may have inappropriately failed to reject the null hypothesis in the case of some of these variables with large amounts of missing data and near-significant associations with intimate partner femicide risk.

Another limitation was that we excluded women who did not reside in large urban areas (other than Wichita, Kan) and control group women who did not have telephones. We also failed to keep records of exactly which proxy interviews (estimated to be less

TABLE 2—*Continued*

Partner threatened woman with a weapon, No. (%)			<.001
Yes	16 (4.7)	110 (55.3)	
Don't know/refused/missing	0	21	
Partner threatened to harm children, No. (%)			<.001
Yes	4 (1.2)	36 (18.5)	
Don't know/refused/missing	7	25	
Stalking behavior (score > 3), No. (%)			<.001
Yes	21 (6.1)	47 (21.4)	
Don't know/refused/missing	0	0	
Characteristics of physical violence			
Increase in frequency, No. (%)			<.001
Yes	88 (25.7)	109 (59.9)	
Don't know/refused/missing	5	38	
Increase in severity, No. (%)			<.001
Yes	70 (20.4)	105 (64.4)	
Don't know/refused/missing	5	57	
Partner tried to choke (strangle) woman, No. (%)			<.001
Yes	34 (9.9)	84 (56.4)	
Don't know/refused/missing	1	71	
Forced sex, No. (%)			<.001
Yes	51 (14.9)	84 (57.1)	
Don't know/refused/missing	1	73	
Abused during pregnancy (ever), No. (%)			<.001
Yes	24 (7.0)	49 (25.8)	
No or never been pregnant	319 (93.0)	141 (74.2)	
Don't know/refused/missing	0	30	
Partner arrest previously for domestic violence, No. (%)			.003
Yes	46 (13.9)	50 (25.6%)	
Don't know/refused/missing	12	25	
Incident-level variables			
Gun used, No. (%)			<.001
Yes	3 (0.9)	84 (38.2)	
Partner used alcohol or drugs, No. (%)			<.001
Yes	123 (34.6)	133 (60.5)	
Victim used alcohol or drugs, No. (%)			<.001
Yes	44 (12.4)	53 (24.1)	
Order of protection, No. (%)			<.001
Yes	16 (4.7)	54 (24.5)	
Trigger: jealousy, No. (%)			<.001
Yes	52 (17.1)	85 (38.6)	
No or don't know	291 (82.9)	135 (61.4)	
Trigger: woman leaving, No. (%)			<.001
Yes	32 (10.5)	72 (32.7)	
No or don't know	311 (89.5)	148 (67.3)	
Trigger: woman has new relationship, No. (%)			<.001
Yes	7 (2.0)	26 (11.8)	
No or don't know	336 (98.0)	194 (88.2)	

Note. Unless otherwise noted, the referent time periods for risk variables were the year previous to the most abusive event for abused control women and the year previous to the femicide for femicide victims.

than 10% of the total) were conducted in person rather than by telephone, and thus we cannot evaluate the effects of this source of bias. Finally, we have no way to compare the control women who participated with those who did not, and women living in the most dangerous situations may have been less likely to participate as control women. If so, true exposure to the risk factors of interest among women involved in abusive intimate relationships may be greater than our control data suggest, thus inflating our estimates of increased risks associated with these exposures.

CONCLUSIONS

In light of our findings, it is important to consider the role medical professionals might play in identifying women at high risk of intimate partner femicide. The variables that remained significant in model 6 are those most important for identifying abused women at risk for femicide in the health care system and elsewhere, whereas those that were significant in model 7 are particularly important in prevention of the lethal incident itself. When women are identified as abused in medical settings, it is important to assess perpetrators' access to guns and to warn women of the risk guns present. This is especially true in the case of women who have been threatened with a gun or another weapon and in conditions of estrangement. Under federal law, individuals who have been convicted of domestic violence or who are subject to a restraining order are barred from owning firearms. Judges issuing orders of protection in cases of intimate partner violence should consider the heightened risk of lethal violence associated with abusers' access to firearms.

Often, battered women like the idea of a health care professional notifying the police for them; however, with the exception of California, states do not require health care professionals to report to the criminal justice system unless there is evidence of a felony assault or an injury from an assault.[38–40] In states other than California, the professional can offer to call the police, but the woman should have the final say, in that she can best assess any increased danger that might

TABLE 3—Hypothesized Risk Factors for Intimate Partner Femicide Among Women Involved in a Physically Abusive Intimate Relationship Within the Past 2 Years: Adjusted Odds Ratios

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Abuser age	1.10***	1.08***	NS				
Abuser race/ethnicity	NS						
Abuser education (reference group: high school graduates)							
Less than high school	1.40	NS					
Some college	0.72	NS					
College	0.31*	NS					
Abuser job status (reference group: employed full time)							
Employed part time	1.61	NS	NS	NS	NS	NS	NS
Unemployed, seeking job	1.34	NS	NS	NS	NS	NS	NS
Unemployed, not seeking job	5.09***	6.27***	4.00***	3.24***	4.28***	4.42***	4.35*
Victim age	NS						
Victim race/ethnicity	NS						
Victim education (reference group: high school graduates)							
Less than high school	1.61	NS	NS	NS			
Some college	0.87	NS	NS	NS			
College	0.31**	0.15*	0.28*	NS			
Victim job status (reference group: employed full time)							
Employed part time	0.95	NS	NS				
Unemployed, seeking job	0.13***	0.25*	NS				
Unemployed, not seeking job	0.99	NS	NS				
General risk factors for homicide							
Abuser problem drinker		NS					
Abuser used illicit drugs		4.76***	2.19*	1.88*	NS	NS	
Abuser mental health		NS					
Abuser threatened suicide		NS					
Abuser hurt pet		NS					
Abuser access to gun		7.59***	9.21***	8.28***	5.44***	5.38***	NS
Abuser arrest for violent crime		NS					
Victim problem drinker		NS					
Victim used illicit drugs		NS					
Victim sole access to gun		0.22*	NS	NS	NS	NS	NS
Relationship variables							
Married			NS				
Divorced			NS				
Time in relationship			NS				
Cohabitation (reference: living together during entire past year)							
Living together less than 1 year			NS				
Previously lived together, separated at time of incident			3.64**				
Never lived together			0.39**	0.30**	0.36*	0.34**	0.31**

Continued

result from the police being notified. An excellent resource for referral, shelter, and information is the National Domestic Violence Hotline (1-800-799-SAFE).

If a woman confides that she is planning to leave her abuser, it is critical to warn her not to confront him personally with her decision. Instead, she needs to leave when he is not present and leave a note or call him later. It is also clear that extremely controlling abusers are particularly dangerous under conditions of estrangement. A question such as "Does your partner try to control *all* of your daily activities?" (from the Danger Assessment[15]) can quickly assess this extreme need for control. Health care professionals can also expeditiously assess whether the perpetrator is unemployed, whether stepchildren are present in the home, and whether the perpetrator has threatened to kill the victim. Under these conditions of extreme danger, it is incumbent on health care professionals to be extremely assertive with abused women about their risk of homicide and their need for shelter.[41] ■

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Contributors

J.C. Campbell designed the study and wrote most of the introductory and Discussion sections. D. Webster analyzed the data, wrote most of the Results section, and contributed to the Methods and Discussion sections. J. Koziol-McLain wrote the Methods section, con-

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.
*$P < .05$; **$P < .01$; ***$P < .001$.

tributed to the Results section, and prepared the tables. J. Manganello contributed to the data analysis and Results sections. All other authors collected data, contributed to the introductory and Discussion sections, and reviewed the article.

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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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