
Intimate Partner Violence: Development of a Brief Risk Assessment for the Emergency Department

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Abstract

Objectives: Women assaulted by intimate partners are frequently patients in emergency departments (EDs). Many victims and health care providers fail to take into account the potential risks of repeat partner violence. The objective of this study was to use data from a larger study of domestic violence risk assessment methods to develop a brief assessment for acute care settings to identify victims at highest risk for suffering severe injury or potentially lethal assault by an intimate partner or former partner.

Methods: Victims of intimate partner violence (IPV) were interviewed twice between 2002 and 2004. The baseline interview included the 20 items of Campbell's Danger Assessment (DA; predictor). The follow-up interview, conducted 9 months later on average, assessed abuse inflicted since the baseline interview (outcome). Multiple logistic regression was used to identify questions on the DA most predictive of severe abuse and potentially lethal assaults. Female IPV victims were recruited from New York City family courts, Los Angeles County Sheriff's Department 9-1-1 calls, New York City and Los Angeles shelters, and New York City hospitals; 666 women responded to the DA at baseline, and 60% participated in follow-up interviews.

Results: Severe injuries or potentially lethal assaults were experienced by 14.9% of retained study participants between the baseline and follow-up interviews. The best brief prediction instrument has five questions. A positive answer to any three questions has a sensitivity of 83% (95% confidence interval = 70.6% to 91.4%).

Conclusions: This instrument can help predict which victims may be at increased risk for severe injury or potentially lethal assault and can aid clinicians in differentiating which patients require comprehensive safety interventions.

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Intimate partner violence (IPV) against women is pervasive in the United States. The most recent prevalence statistics indicate that 23.6% of U.S. women report experiences of threatened, attempted, or completed physical violence or unwanted sex by a current or former intimate partner during their lifetime.¹ According to the 2000 National Violence Against Women Survey, 2 million of the estimated 4.8 million violent assaults against women by their intimate partners each year resulted in injury, and over one-quarter of those required medical attention.² Of all women treated in emergency departments (EDs), it is estimated that 2.2% to 12% present with injuries related to acute IPV.^{3–7} IPV is associated with increased risk of a number of physical and mental illnesses, so emergency physicians (EPs) and staff are likely to see victims of IPV in their daily practice.^{1,8}

Femicide (murder of females) is the most severe outcome of IPV. Over 30% of femicides are perpetrated by

current or former intimate partners.⁹ One in five women killed by an intimate partner had received ED care in the year prior to her murder for injuries inflicted by the same partner, suggesting the possibility of unrealized opportunities for secondary prevention.¹⁰

In many environments, and especially in acute care settings, resources for abused women are limited. When IPV is established in these settings, risk assessment can be an adjunct to clinical judgment and can enable health care providers to provide better care to victims. In the ED, staff can use screens to identify women at highest risk of repeat, severe violence and make appropriate referrals. Risk assessment, if accurate, can promote victim and provider awareness of risk for future IPV as well as motivate and inform strategies to enhance victim safety.^{11,12}

The Risk Assessment Validation Evaluation (RAVE) study compared the predictive accuracy of a victim's assessment of the likelihood of future assault by her current or former partner and her assessment of risk of serious harm from him with scores and categories generated by four IPV risk assessment methods: the Danger Assessment (DA), DV-Mosaic, Domestic Violence Screening Instrument (DVS), and the Kingston Screening Instrument for Domestic Violence (K-SID).¹¹ Of the four methods, the DA demonstrated the highest predictive accuracy. Only 30% of the women identified as being at high or very high risk on the DA at baseline experienced severe assaults by their partners during a 9-month follow-up period. However, of those who experienced severe assaults, 56% percent had been categorized in the highest of four risk categories of the DA, and 78% were categorized in the top two categories of risk (high or very high risk).

Each risk assessment method examined in the RAVE study requires an extensive assessment with 10 or more questions. The DA used in the RAVE study includes 20 separate questions. Unfortunately, the time required to conduct such assessments with women identified as victims of IPV is a barrier to their adoption in the ED, where practitioners care for many sick patients simultaneously. A brief assessment that helps discriminate between victims of IPV who are at highest risk for suffering severe injury or potentially lethal assault in the future and those who are at lower risk might mitigate this obstacle.

The objective of this study was to create a brief screening tool to identify IPV victims at greatest risk for being severely assaulted using data from the RAVE study on the 20 items from the DA. (As no participants in the RAVE study were murdered by their abusers during follow-up, to the best of our knowledge, we could not assess whether this instrument predicts actual femicide in this prospective study.) Using such a tool, emergency physicians can better determine which patients require comprehensive interventions in the ED.

METHODS

Study Design

This was a retrospective analysis of selected RAVE data to build an ED brief risk assessment instrument for IPV. The RAVE study was approved by Johns Hopkins

University's institutional review board (IRB). The IRBs at all hospitals involved (Harlem Hospital Center in Manhattan, Kings County Hospital in Brooklyn, and Lincoln Hospital in the Bronx) also approved the protocols used in those hospitals. Written informed consent was obtained from all participants interviewed in person and oral informed consent was obtained from those participating by telephone. As the final report of the RAVE study is publicly available and no identifiable data were used in the current study, no further IRB approval was required for this reanalysis.

Study Setting and Population

The brief risk assessment instrument was developed using data collected in the RAVE study described in Roehl et al.¹¹ In the RAVE study, female victims of IPV were interviewed between 2002 and 2004. A follow-up interview was conducted an average of 9 months after the baseline interview. In total, 666 women were administered the DA at baseline and 400 of these participants (60.1%) completed follow-up interviews. Women identified as recent victims of IPV were recruited into the RAVE study from New York City family courts, the Los Angeles Sheriff's Department, New York City and Los Angeles County shelters, New York City hospitals, and Safe Horizons community offices serving domestic violence victims. Confidential interviews were completed by trained interviewers either in person or by phone under conditions ensuring the safety of the subject and interviewer. For in-person interviews, recruiting was done only if the woman was alone or with a trusted family member or friend (who was not the abuser), and interviews were conducted in a secure, private space. All phone interviews were made from a blocked number and no messages were left that would identify the study. If the interviewer talked to anyone other than the participant, the study was referred to as the "Women's Health Study."

Respondents were excluded from our final data analysis if there was no opportunity for in-person contact between the abuser and victim between the baseline and follow-up interviews. Twelve participants were excluded from analysis on this basis.

Study Protocol

Predictors Measured. The 20 questions that comprise the DA used in the RAVE study were assessed as predictors (Table 1; the current version of the DA differs slightly from the one used in this study. See <http://www.dangerassessment.org> for the current DA). The responses to these yes/no questions were coded as binary variables. The DA was developed based on retrospective research studies and a case-control study of risk factors for lethal and potentially lethal violence against women currently or formerly partnered with men who abused them.¹³⁻¹⁶

Outcomes Measured. The outcome measured at follow-up was whether, since the initial interview, the participant suffered an assault by her partner or ex-partner that inflicted severe injury or was potentially fatal. Potentially lethal assaults were defined as actions by the abuser that had the potential to kill but did not,

Table 1
DA—Modified as Yes = 1 and No = 0*

- Q1. Has the physical violence increased in frequency or severity over the past 6 months?
 Q2. Has he ever used a weapon or threatened you with a weapon?
 Q3. Does he ever try to choke you?
 Q4. Does he own a gun?
 Q5. Has he ever forced you into sex when you didn't wish to?
 Q6. Does he use drugs (by drugs, I mean "uppers" or amphetamines, speed, angel dust, cocaine, crack, street drugs, heroin, or mixtures)? (*Just weed or grass is "no."*)
 Q7. Does he threaten to kill you?
 Q8. Do you believe he is capable of killing you?
 Q9. Does he consume a large amount of alcohol or get drunk every day or almost every day?
 Q10. Does he control most or all of your daily activities? (For instance, does he tell you who you can be friends with, how much money you can take with you shopping, or when you can take the car?)
 Q11. Have you ever been beaten by him while you were pregnant?
 Q12. Is he violently and constantly jealous of you?
 Q13. Have you ever threatened or tried to commit suicide?
 Q14. Has he ever threatened or tried to commit suicide?
 Q15. Does he threaten to harm your children?
 Q16. Do you have a child that is not his?
 Q17. Is he unemployed?
 Q18. Have you left him in the past year?
 Q19. Do you currently have another (different) intimate partner?
 Q20. Does he follow or spy on you, leave threatening notes, destroy your property, and/or call you when you don't want him to?

DA = Danger Assessment.

*The DA is currently used with a weighted score, rather than a simple count of yes/no responses used in this study and some items have been reworded and reordered.¹⁵

in this sample, such as use of a knife or gun, choking (strangulation), attempted murder, and burning. Each item in the severe outcome scale was coded as a binary (yes/no) variable. The outcome measure was based on questions from the Revised Conflict Tactics Scale (CTS2),¹⁷ the standard scale used for assessing severity of physical abuse, as well as questions designed by the RAVE investigators to assess severity of injury. The outcome was considered positive for women who answered in the affirmative to any one of the questions in the severity scale shown in Table 2.

Protective Actions. In measuring the accuracy of the predictions, it was important to take into account conditions or actions that might have prevented a physical assault by making the victim inaccessible to the abuser. Each participant was asked if she had been in a domestic violence shelter or her abuser had been in jail or out of the country since the last interview, and if so, for how long.

Data Analysis

To determine whether those who completed the follow-up interview (the study sample) were comparable to those who could not be located at follow-up, we compared their baseline demographic characteristics using the Pearson chi-square test for comparison of two proportions. A simple Students' t-test was used to compare mean ages.

To identify the strongest predictors among the 20 items of the DA, a prediction model was developed using investigator-controlled backward stepwise selection from multiple logistic regressions, using Akaike Information Criteria (AIC) to compare nested models. Multicollinearity of predictors was assessed by examin-

ing variance inflation factors. The best model was confirmed using the Hosmer-Lemeshow goodness-of-fit test. The best model was then validated using a split sample cross-validation macro developed for Stata. This macro leaves out a small fraction (1/10) of observations (in our study this equals 39), uses the rest of the data to fit the model, and then predicts the left out values. This process is then repeated for all possible fractions. This procedure cross-validates the Hosmer-Lemeshow goodness-of-fit test.¹⁸ Analyses were conducted with the Stata statistical package (Intercooled Stata Version 9.2, StataCorp LP, College Station, TX).

Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were calculated for the models for each cutoff of answering yes to one question, yes to two questions, etc. (up to five). Models were compared against a question asked at baseline designed to gauge a woman's own assessment of the risk that her abuser would seriously hurt her in the next six months. Victims answered on a 10-point scale, from very unlikely to very likely or probable.

Risk Assessment Selection. Health care providers are concerned with judgments that capture all possible cases in which there is a risk of releasing without appropriate intervention a woman who is in danger of a severe assault by her partner.^{10,19,20} Therefore, in developing the brief risk assessment we wanted to maximize sensitivity; that is, we wanted to minimize false negatives (FN). At the same time, we recognized the negative impact of false positives (FP), such as exhausting scarce resources and causing unwarranted fear and possibly major disruptions in a woman's life when alarm is unwarranted.²¹ However, the consequences of a FN are much more dangerous than the consequences

Table 2
Outcome: Serious Injury or Potentially Lethal Assault During Follow-up (N = 388)

Since the last interview:	No. (%) of respondents
Your partner used a knife or gun on you (one or more times)	15 (3.9)
Your partner choked you (one or more times)	42 (10.8)
Your partner burned or scalded you on purpose (one or more times)	3 (0.8)
Have you suffered internal injuries to vital organs because of a fight with your partner/former partner?	4 (1.0)
Lost consciousness due to him choking you?	8 (2.0)
Have you lost consciousness for more than 1 hour due to head injuries?	1 (0.3)
Have you been hospitalized or in rehab for more than 4 days because of injuries?	3 (0.8)
Did he try to kill you?	32 (8.2)
Total number of participants experiencing severe injury or potentially fatal assault during follow-up*	58 (14.9)

*Does not equal sum as some participants responded affirmatively to multiple items.

of a FP. Therefore, the authors set the following criteria for the model: 1) sensitivity of ≥ 0.8 and 2) a relative reduction of one FN to an increase of ten FP. There are no guidelines in IPV research for choosing this tradeoff, and therefore we were guided by criminology research.²²

RESULTS

Baseline Characteristics of Participants

Baseline characteristics of the full sample and comparisons between the women who were reached for follow-up versus those who completed only the baseline

interview are presented in Table 3. The only statistically significant differences between the two interview groups were demographic: Hispanic women were more likely than other racial or ethnic groups to complete the follow-up interview, and baseline interview participants whose abusers were common-law partners or ex-husbands were more likely than those in other types of relationships to complete the follow-up interview. There was no difference between the two groups with respect to baseline measures of severity of prior abuse or DA score.

Fifty-eight women (14.9%) experienced severe injuries or potentially lethal assaults between the baseline and

Table 3
Baseline Characteristics: Comparison of Participants with Follow-up Interviews to Those Who Completed Baseline Only

	Baseline Only (n = 266), n (% of total at baseline)	Completed Follow-up (n = 400), n (% of total at baseline)	p-value
Mean age, yr (95% CI)	30.2 (29.3–31.2)	31.9 (31.0–32.7)	0.589
Race			0.018
Black/African American	82 (30.8)	107 (26.8)	
Hispanic	120 (45.1)	224 (56.0)	
White	30 (11.3)	40 (10.0)	
Other	34 (12.8)	29 (7.3)	
Foreign born	99 (37.2)	157 (39.4)	0.580
Education			0.457
Not a high school graduate	87 (32.8)	133 (33.3)	
High school grad/GED	73 (27.5)	129 (32.3)	
Some college or more	105 (39.6)	138 (34.5)	
Employment status			0.109
Working full- or part-time	105 (39.4)	183 (45.8)	
Other (unemployed, homemaker, student)	161 (60.5)	271 (54.3)	
Marital status			0.679
Single	128 (48.1)	192 (48.3)	
Married	108 (40.6)	161 (40.5)	
Separated	19 (7.1)	22 (5.5)	
Divorced	11 (4.1)	23 (5.8)	
Abuser's relationship to victim			0.004
Boyfriend	20 (7.7)	39 (9.9)	
Husband	69 (26.5)	110 (27.9)	
Common law	2 (0.8)	17 (4.3)	
Estranged husband	39 (15.0)	57 (14.4)	
Ex-boyfriend	112 (43.1)	150 (38.0)	
Ex-husband	7 (2.7)	19 (4.8)	
Ex-common law	11 (4.2)	3 (0.8)	
Current level of involvement			0.285
Cohabiting	51 (19.2)	102 (25.5)	
Not cohabiting but still intimately involved	11 (4.1)	14 (3.5)	
On again, off again relationship	8 (3.0)	13 (3.3)	
Not cohabiting, no intimate relationship currently	196 (73.7)	271 (67.8)	

follow-up interviews, with some women reporting more than one type of severe physical assault (Table 2). "Choking" (a term commonly used by victims to describe strangling) was the most prevalent form of severe physical assault perpetrated against this sample, with 42 (10.8%) being choked at least once by their partners in the period between interviews. Thirty-two women (8.2%) reported that their partners tried to kill them. Fifteen (3.9%) stated that their partners used a knife or gun on them at least once in the intervening period. A comparison of baseline demographic characteristics of the women whose partners inflicted severe injuries or potentially lethal assaults versus those whose partners did not showed no statistically significant differences.

A univariate logistic regression analysis was performed on the 20 predictor variables from the DA (Table 4). The prediction model was developed using backward stepwise selection from multiple logistic regression. This resulted in a model consisting of five DA questions: (Q1) Has the physical violence increased in frequency or severity over the past 6 months? (Q2) Has he (the abuser) ever used a weapon or threatened

you with a weapon? (Q8) Do you believe he is capable of killing you? (Q11) Have you ever been beaten by him while you were pregnant? and (Q12) Is he violently and constantly jealous of you? This model had the best fit based on the area under the curve and the Hosmer-Lemeshow goodness-of-fit statistic (Table 5). Cross-validation demonstrated that the model was internally valid with an Hosmer-Lemeshow p-value of 0.12.

Sensitivity Analysis. The recommended brief risk assessment consists of the five DA items noted above that were found to independently predict serious injury and/or potentially lethal assaults. Sensitivity, specificity, FP, FN, PPV, and NPV for potential cut-points for the five-item screen are shown in Table 6. Using three "yes" responses to the five questions as the threshold for high-risk has a sensitivity of 83% (95% confidence interval [CI] = 70.6% to 91.4%), a specificity of 56% (95% CI = 50.8% to 61.8%), and a PPV of 25%.

The five-question screen with a criterion of three "yes" responses was compared to the victim's rating of

Table 4
Univariate Analysis: Unadjusted ORs and 95% CIs for Near-fatal Injury

Variable	OR	95% CI	p-value
Q1. Has the physical violence increased in frequency or severity over the past 6 months?	4.7	(2.5–8.6)	0.000
Q2. Has he ever used a weapon or threatened you with a weapon?	3.8	(2.1–6.9)	0.000
Q3. Does he ever try to choke you?	4.1	(2.1–7.7)	0.000
Q4. Does he own a gun?	1.6	(0.8–3.4)	0.225
Q5. Has he ever forced you into sex when you didn't wish to?	1.7	(1.0–3.0)	0.064
Q6. Does he use drugs?	1.5	(0.8–2.6)	0.222
Q7. Does he threaten to kill you?	3.7	(1.9–7.2)	0.000
Q8. Do you believe he is capable of killing you?	5.0	(2.3–10.8)	0.000
Q9. Does he consume a large amount of alcohol or get drunk every day or almost everyday?	1.8	(1.1–3.2)	0.034
Q10. Does he control most or all of your daily activities?	1.9	(1.1–3.2)	0.033
Q11. Have you ever been beaten by him while you were pregnant?	3.4	(1.9–6.0)	0.000
Q12. Is he violently and constantly jealous of you?	5.5	(2.1–14.0)	0.000
Q13. Have you ever threatened or tried to commit suicide?	1.3	(0.7–2.5)	0.440
Q14. Has he ever threatened or tried to commit suicide?	1.3	(0.7–2.3)	0.437
Q15. Does he threaten to harm your children?	1.7	(0.9–3.4)	0.096
Q16. Do you have a child that is not his?	1.5	(0.8–2.6)	0.190
Q17. Is he unemployed?	1.3	(0.7–2.3)	0.387
Q18. Have you left him in the past year?	1.4	(0.7–2.5)	0.344
Q19. Do you currently have another (different) intimate partner?	0.4	(0.1–1.1)	0.072
Q20. Does he follow or spy on you, leave threatening notes, destroy your property, and/or call you when you don't want him to?	3.4	(1.8–6.5)	0.000

Table 5
Results of Stepwise Logistic Regression

Five-question model*	OR	95% CI	p value
Q1. Has the physical violence increased in frequency or severity over the past 6 months?	3.7	(1.9–7.1)	<0.001
Q2. Has he ever used a weapon or threatened you with a weapon?	2.1	(1.1–3.9)	0.025
Q8. Do you believe he is capable of killing you?	2.6	(1.1–6.1)	0.027
Q11. Have you ever been beaten by him while you were pregnant?	2.2	(1.2–4.1)	0.010
Q12. Is he violently and constantly jealous of you?	3.0	(1.1–8.1)	0.028

*Cross-validated Hosmer-Lemeshow goodness of fit = 0.12; Area under the curve = 0.79 (95% CI = 0.73–0.85).

Table 6
Sensitivity Analysis

No. positive	Sensitivity	Specificity	FP	FN	FP/FN ratio	PPV	NPV
One	1.00	0.15	280	0	280	0.17	1.00
Two	0.95	0.32	223	3	74	0.20	0.97
Three	0.83	0.56	144	10	14	0.25	0.95
Four	0.66	0.82	59	20	3	0.39	0.93
Five	0.28	0.96	12	42	0.3	0.57	0.88

FN = false negative; FP = false positive; NPV = negative predictive value; PPV = positive predictive value.

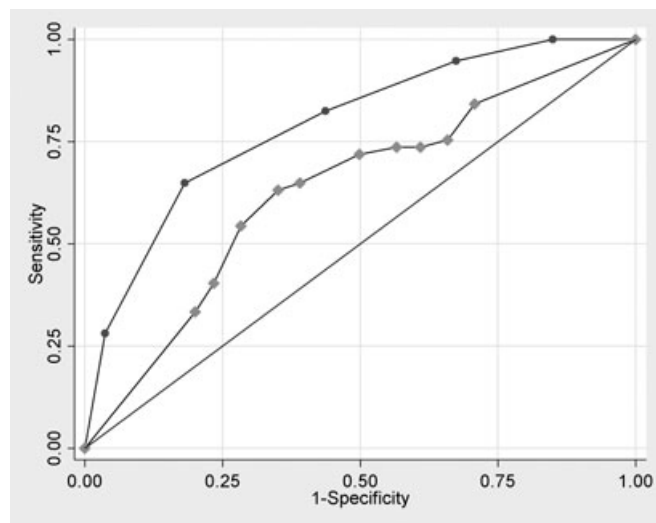


Figure 1. Receiver operating curve (ROC) comparison of model versus self-perceived risk model. ROC area = 0.79 (circles line); self-perceived risk ROC area = 0.63 (squares line).

the risk that she would be seriously harmed using receiver operating curve (ROC) analysis (Figure 1). The area under the curve for the five question model is 0.79 (95% CI = 0.73 to 0.85), whereas the area under the curve for self-perceived risk is 0.63 (95% CI = 0.56 to 0.71).

DISCUSSION

We provide a new perspective on assessment instruments for IPV in the ED. Overcrowding, limited resources of EDs, and the discomfort that many ED health care providers seem to have about intervening when a patient is victimized by an intimate partner raise concerns about how effective ED personnel can be in helping victims reduce their risk of future harm. The brief risk assessment provides ED health care providers with an adjunct to their clinical judgment about their patients' safety and may help them either validate or raise their patients' awareness of the possible dangers they face.

This brief IPV risk assessment is designed to be used when a woman is already identified as a victim of IPV. This screen is designed to identify those women who are at extremely high risk for severe injury. We recommend using three "yes" responses to the five questions as the threshold for high risk. This has a sensitivity of

83% (95% CI = 70.6% to 91.4%) and a specificity of 56% (95% CI = 50.8% to 61.8%). Nearly all screens have cut-points. Without cut-points, it becomes difficult for clinicians and practitioners, much less patients/clients, to know how to interpret the screen's results. It is therefore unavoidable that people with similar scores that fall on different sides of a cut-point will be put into different risk groups and be told different things about their risks. Health care providers are concerned with the judgment they must display in balancing the provision of urgent protection and the allocation of scarce resources with the associated risk of sending home a woman who is potentially in danger of a severe injury or possibly lethal assault. For most clinical prediction models, it is recommended that the highest sensitivity (and therefore lowest FN rate) is the most appropriate measure to use when choosing the best model.²³ However, in IPV, limiting FP (increasing specificity) should also be considered, because FP may result in unwarranted fear and major changes in a woman's life. Changing to a less stringent cut-off of two out of five "yes" responses increases sensitivity to 94.8% (95% CI = 85.6% to 98.9%) by reducing FN from 10 to 3, but at the expense of an additional 79 FP. The FP-to-FN ratio of 74:1 is high, resulting in a specificity of only 32.4% (95% CI = 27.4% to 37.8%).

Those who do not meet the criteria for high risk should be told that all victims of IPV face risks for repeat violence, sometimes with serious consequences. All should receive some minimum amount of information (e.g., DV resource material, hotline phone numbers). Thus, nothing is withheld from the lower-risk patients/clients that they would not have received before the screening protocol is put into place.

If a woman answers yes to at least three of the five questions, ED health care providers should recognize that this woman is at high risk of being seriously injured or suffering a potentially lethal assault by her partner or ex-partner. Health care workers must be aware of their ED and community resources. Ideally, they should offer to call a social worker or to help connect the patient with an agency that provides services for IPV victims who can discuss with the patient options for enhancing her safety. These options will depend on whether the victim is committed to staying in the relationship with her abusive partner, or would like to leave, as well as the patient's resources and family responsibilities. Observational studies show independent associations

between IPV victims avoiding reassault and any of the following actions: staying away from their abusers, going to shelter, and getting a long-term protection order from a court.^{24–29} If necessary, the ED and hospital should attempt to provide a secure environment until the woman has a safe place to go.

Women injured by violence face complex and diverse situations that make predicting future violence difficult. If a woman communicates fear and urgency or asks for referral to domestic violence services, then her intuition and request should be respected and accommodated. The fact that women are more likely to underestimate their risk than to overestimate it, as demonstrated by the ROC analysis, supports this recommendation. Weisz and colleagues³⁰ studied women's perceptions of risk of subsequent harm from their partners and also found that some victims who subsequently experienced severe injury drastically underestimated that risk. A qualitative study of near-femicides by Nicolaidis and colleagues³¹ demonstrated that some IPV victims may perceive even extreme levels of violence in their lives as normal; almost half did not realize the gravity of the risk they faced. These findings highlight the benefit an assessment tool can have in aiding a clinician in identifying IPV victims who may be most at risk of further injury.

LIMITATIONS

Femicide is an extreme and rare outcome that fortunately was not identified as being successfully carried out by the partners or former partners of participants in this prospective study. A more formal review of femicides might have revealed this outcome. The retrospective femicide study by Campbell et al.¹⁶ determined that the strongest risk factor for femicide was the abuser's access to a gun. This item did not make it into our brief screen, although the question about prior threats with or use of a weapon was strongly associated with femicide in the retrospective study and with severe injury in this prospective study. Thus, the brief risk assessment may predict severe injury better than it predicts lethal outcomes.

The follow-up rate is lower than would be expected of many clinical trials, but is similar to another prospective trial for IPV.³² Interviewers often had difficulty reaching study participants for follow-up interviews, despite asking them at the baseline interview for alternative contact numbers, sending letters, and attempting to get new contact information through caseworkers for the shelter sample (which had relatively high study attrition rates). It is imperative when following up with women in IPV research to ensure their safety; after attempts have been made to contact the participant through her suggested alternative contacts, no further efforts are appropriate or possible. The fact that baseline levels of abuse and danger did not differ between those who were lost at follow-up and those retained in the study provides some assurance that our inability to reach some respondents at follow-up did not significantly bias our findings. Work in the area of follow-up for ED-based IPV studies has been advanced by Wiebe et al.,³³

whose study showed approximately 75% follow-up of ED IPV patients within the next month using an automated phone survey method, although the follow-up period was much shorter than in this study.

The study sample, drawn from New York City and Los Angeles County, and primarily from law enforcement and family court sites—resources generally used more often by lower income victims—was predominantly Hispanic and black/African American and therefore is not representative of abused women throughout the U.S. population. Therefore, we are uncertain of the generalizability of findings to the U.S. population as a whole.

The study recruitment sites (courts, a sheriff's department, domestic violence shelters, hospitals, and community offices) provided the most ready access to women suffering from IPV. As only 2% of our sample was referred from a hospital, it is unclear to what extent these findings generalize to patients in the ED. However, as all women were interviewed during an acute time—58% had called 9-1-1 and 20% had seen a physician or nurse due to abuse-related injuries in the past 6 months—the findings may be generalizable to the ED population in the areas where we conducted our study. It will be important to validate this research in an acute care setting with a more diverse sample. In the interim, this study provides the first validated brief risk assessment available for the acute care setting and can provide health care workers with direction in their practice.

Finally, there is a definite danger of ED health care providers misinterpreting the outcome of this brief risk assessment as predicting *any* reinjury and failing to respond to those who score low on the brief risk assessment. This instrument assesses the risk of severe injury and potentially lethal assaults only; therefore, health care providers should continue to offer the range of available services to all women identified as victims of IPV. It also missed 17% of those who did suffer severe injury or potentially lethal assault during the follow-up period, and it is not known how well it predicts homicide. This tool should be used only as a guide for ED health care providers in their decisions concerning when to provide a more comprehensive and urgent response.

CONCLUSIONS

Our brief assessment supplies ED health care providers with five simple questions to help guide their care of women injured by an intimate partner. It can help ED health care providers to identify, from among all victims of IPV, the majority of those who are most likely to experience severe injury or potentially lethal assault. In an age of extremely limited ED resources and uncertainty of how best to care for victims of IPV, this tool can aid health care providers in their decision-making about providing immediate protection versus recommending community support.

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