

Research Results From a National Study of Intimate Partner Homicide: The Danger Assessment Instrument¹

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The majority (67 to 80 percent) of intimate partner murders of women by a husband, boyfriend, or ex-husband or boyfriend involve physical abuse of the female by the male prior to the murder, no matter which partner is killed (Greenfield et al., 1998; Moracco, Runyan, and Butts, 1998; McFarlane et al., 1999; Pataki, 1997; Campbell, 1995). To prevent this form of homicide, therefore, the battered women most at risk need to be identified. The Danger Assessment (DA) is a short (15 items) yes/no instrument that was developed in 1986 to help women assess the risk of lethality in their abusive intimate partner relationships. It has been used in many domestic violence programs by shelter advocates, criminal justice practitioners, and health care professionals as well as in prior research (Campbell, 1995; Campbell, Sharps, and Glass, 2000). Two small, independent evaluations of the DA showed that it is also useful in predicting repeat arrest in battering relationships (Bennett, Goodman, and Dutton, 2000; Weisz, Tolman, and Saunders, 2000).

The purpose of this study was to test the ability of the DA to predict intimate partner homicide among women in violent relationships in a large national study. A group of researchers in 12 cities across the country partnered with police departments, district attorney offices, domestic violence shelters, and medical examiners to conduct the study. A case control design was used with interviews of proxy informants for females killed by an intimate partner (cases) compared with information from abused women (abused controls).

Methods

A 12-city²¹ case-control design was used with consecutive intimate partner homicides as cases and randomly identified abused women living in the same metropolitan area as controls. Sampling quotas for cases and controls for each city were determined by annual rates of intimate partner homicides. Institutional review board approval was obtained as required by each site.

Homicide Cases ($n = 220$). Police or medical examiner records were abstracted at each site, and at least two potential proxy informants for the victim were identified from the records and contacted by mail or phone. When a proxy informant knowledgeable about details of the relationship was found, informed consent was obtained. In 373 of the 545 (68 percent) total homicide cases, a knowledgeable proxy was identified and located. Proxies agreed to participate in 82 percent (307/373) of those cases. Cases (87) were excluded from the analysis if the victim did not meet the age inclusion criteria (18 to 50 years) or if the proxy reported no prior abuse by the perpetrator. Telephone or in-person interviews lasting 60 to 90 minutes were conducted by researchers and doctoral students who were experienced in working with victims of domestic violence.

Abused Control ($n = 356$). Stratified random digit dialing was used to select women ages 18 to 50 years who had been in a relationship in which they were “romantically or sexually involved with someone” at some time in the past 2 years in the same cities as the intimate partner homicides occurred. A woman was considered abused if she had been physically assaulted, threatened with serious violence, or stalked by a current or former intimate partner during the past 2 years, as determined using a modified Conflict Tactics Scale (CTS) with stalking items added (Straus and Gelles, 1990). English- and Spanish-speaking telephone interviewers from an experienced telephone survey firm completed sensitivity and safety protocol training (Johnson

and Sacco, 1995). Of the 1,954 women who met the age and relationship criteria and were read the consent statement, 845 (43 percent) agreed to participate. Of these, 356 had been abused by a current or recent intimate partner.

Risk Factor Survey Instrument

As well as the DA, the interview included demographic and relationship characteristics including type, frequency and severity of any violence, psychological abuse and harassment, alcohol and drug use, and weapon availability. Scales measuring partners' controlling behaviors and stalking were constructed based on factor analysis of the risk factor items. Each scale was internally consistent ($\alpha = .83$ and $.75$, respectively).

Analysis Plan

Bivariate logistic regression was used to estimate the independent association between each of the hypothesized risk factors from the DA and the risk of intimate partner homicide. Psychometric analysis of the DA included internal consistency and discriminant group validity using mean scores. In addition, the sensitivity and specificity for a series of cutoff scores were calculated as a beginning step toward establishing a usable cutoff score for the DA for practitioners.

Results

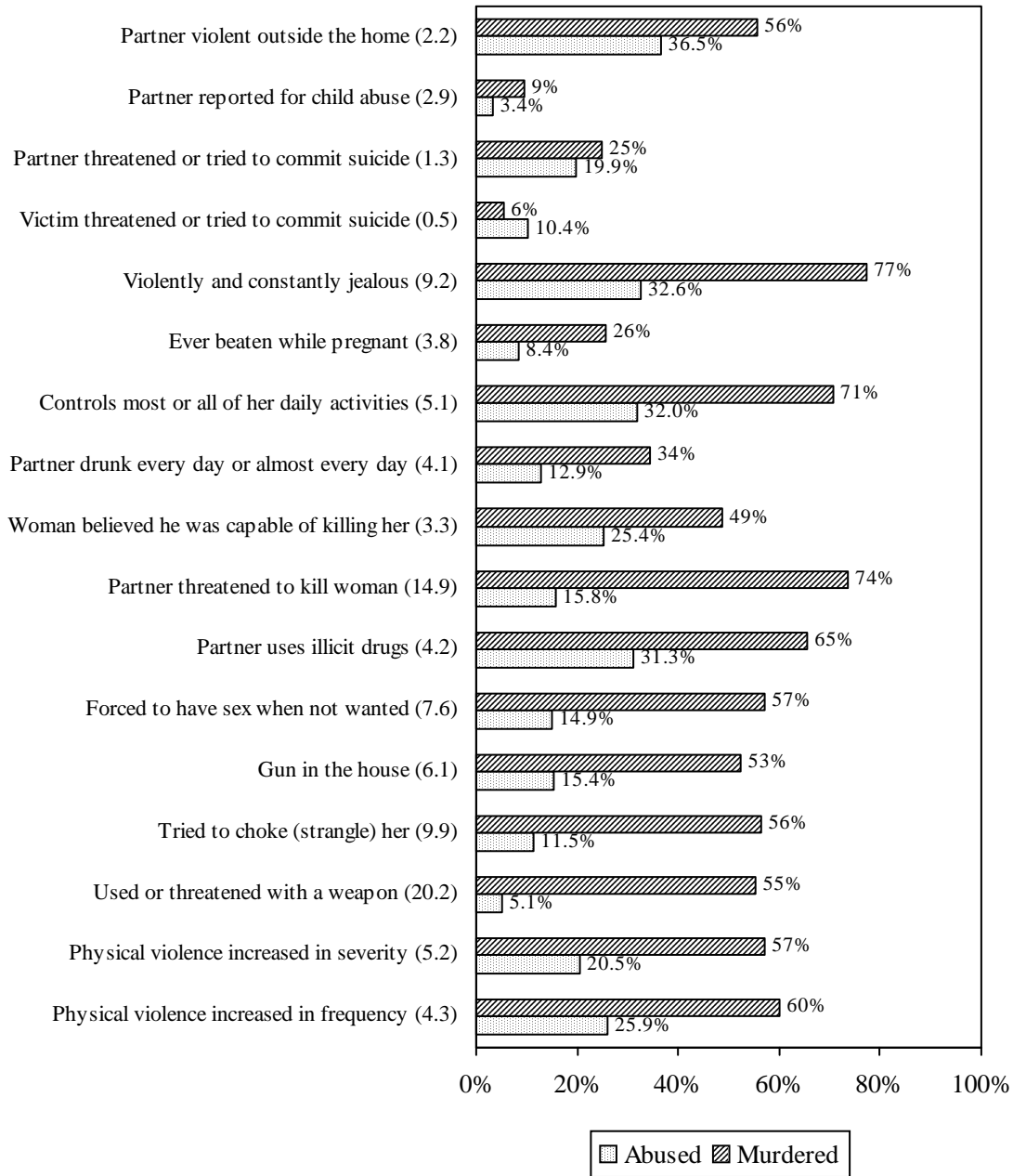
Danger Assessment Risk Factors

In our analysis of the DA risk factors, 15 of the 17 items distinguished intimate partner homicide victims from abused women (see exhibit 1). The factor with the strongest risk (highest odds ratio) was use (or threatened use) of a weapon. Those women were 20 times more likely to be killed as other abused women. Women who had been threatened with being killed were almost 15 times more likely to be among the homicide victims rather than among the abused controls.

Perpetrator drug abuse and serious alcohol abuse (drunkenness every day or almost every day) (Sharps, Campbell, Campbell, et al., 2001) also differentiated batterers who killed from those who did not, as did prior gun ownership. One item on the DA asks about the presence of a gun in the house when perhaps the more important risk factor is whether or not the perpetrator owns a gun or, if he is separated from the victim, has access to a gun. Exhibit 2 demonstrates the difference between perpetrator and victim gun ownership between cases and controls. Gun access became even more dangerous when the partners were living apart (Campbell, Webster, Koziol-McLain, et al., 2003).

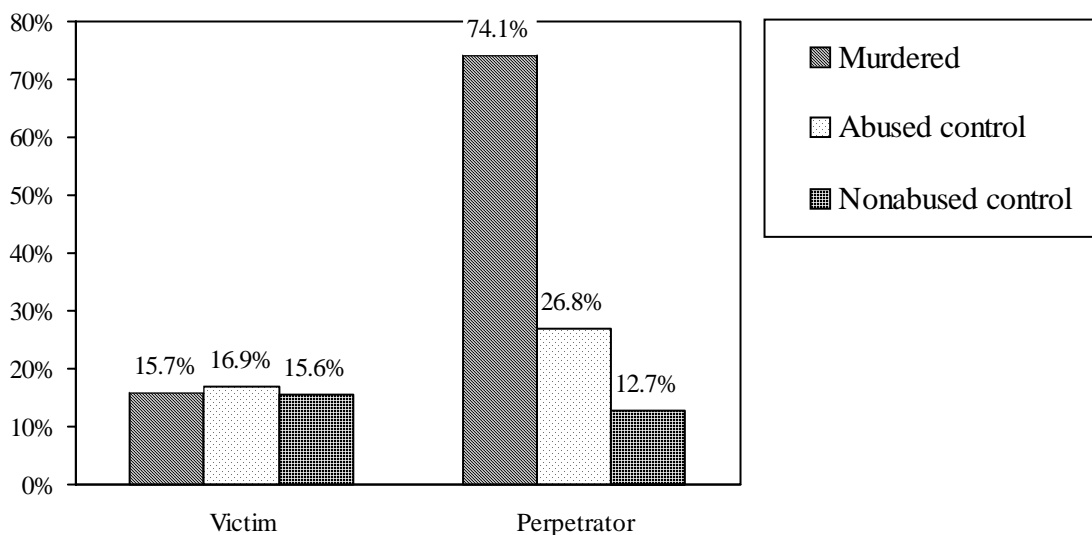
To avoid making child abuse reports, researchers did not ask if the perpetrator was currently violent toward the children (the item on the DA), but whether he had ever been reported for child abuse. Even so, almost 10 percent of the intimate partner homicide cases had a history of such reports. Practitioners may also want to word the item to ask about prior reports, unless the respondent is clear that attesting to violence toward the children will necessitate a child abuse report.

Exhibit 1. Danger Assessment Risk Factors Among Murder Victims and Abused Women (Odds Ratios)



Note: All items had significant odds ratio (95% confidence interval excludes the value of 1) except last two (partner and victim suicidality).

Exhibit 2. Victim and Perpetrator Gun Ownership



The two items on the DA that did not significantly differentiate intimate partner homicide victims from abused women regarded suicidality. Approximately one-third of the cases were homicides followed by perpetrator suicides and researchers are examining those cases to see if perpetrator suicidality was more of a risk factor in those particular circumstances. Victim suicidality was included on the DA because of its association with battered women who killed male abusers (Browne and Williams, 1998). The DA was originally developed to assess the risk of intimate partner homicide, regardless of the gender of the perpetrator. The present study did not assess the risk of male victims of intimate partner homicide and therefore, the importance of this item was not really tested. Even so, victim suicidality is important in preventing mortality and should be retained on the DA.

Danger Assessment Psychometrics

Internal consistency (alpha coefficient) of the DA was acceptable among the homicide cases (0.73) and among the controls (0.76). In the completed analyses the average scores (obtained by adding yes answers) on the DA were 7.4 for the cases and 3.2 for the controls. This significant difference ($p = .004$) supports the validity of the instrument in discriminating between battered women who are likely to be killed and those who are not (discriminant group validity).

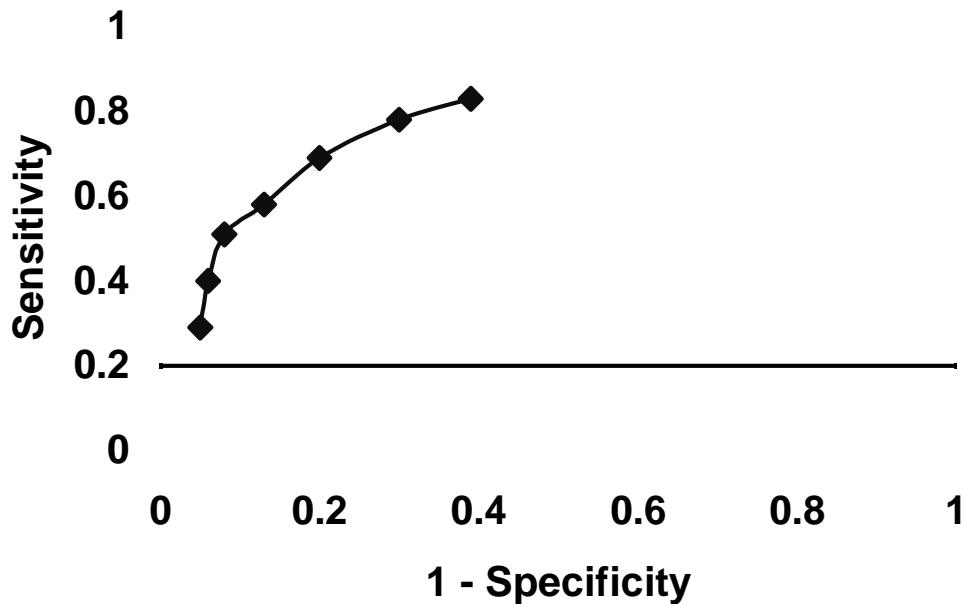
Researchers are continuing to analyze the data to determine a DA cutoff score. Cutoff scores on a lethality risk instrument need to be evaluated in terms of their ability to correctly identify those who end up being killed or “true positives” (sensitivity), as well as their ability not to put women in that category who do not belong there (1-specificity) (Webster, Harris, Rice, Cormier, and Quinsey, 1994). Both of these are important because if the cutoff score is too high, practitioners will fail to predict lethality in too large a percentage of women who are indeed in extreme danger. If the cutoff score is too low, too many women can be frightened unnecessarily, and the criminal justice system may take measures to restrict the liberty of perpetrators unfairly. Thus, determining cutoff scores is both extremely difficult and extremely important.

Exhibits 3 and 4 show the sensitivity and specificity at various scores as a preliminary analysis of various scoring options on the DA. In this beginning cutoff score analysis, researchers found that 83 percent of the women who were killed had a score of 4 or more (greater than 3), which indicates a high level of sensitivity. However, at that score, specificity is relatively low, with almost 40 percent of the abused controls who were *not* killed also at this score. At a cutoff score of 9 (more than 8), specificity is good, with 94 percent of the women who were below that score in the control group. However, only 40 percent of the murders scored that high on the DA (sensitivity). At a cutoff of 7 (greater than 6) both sensitivity (58 percent) and specificity (87 percent) are fairly good, but the 42 percent of women in extreme danger who would be missed at that cutoff are a matter of concern.

Exhibit 3. Sensitivity and Specificity of Various Danger Assessment Cutoff Scores

Cutoff Score	Percent Scoring Above Cutoff	Sensitivity	Specificity
> 3	55.2	83.4	60.8
> 4	47.2	77.9	70.2
> 5	38.0	69.1	79.6
> 6	29.2	58.0	87.1
> 7	23.8	50.8	91.5
> 8	18.4	39.8	93.7
> 9	13.4	28.7	95.3

Exhibit 4. Receiver Operating Characteristics of Various Danger Assessment Cutoff Scores



Implications for Practitioners

Almost half (49 percent) of the women who were killed did not accurately perceive their risk (did not think the perpetrator would kill her) according to the proxy who was interviewed. Therefore, an instrument like the Danger Assessment or some risk assessment process is definitely needed for women to be fully aware of their risk. The study found some support for the DA as it is currently published.³² One important aspect of the DA that the study did not address is the calendar portion of the DA. The calendar exercise helps women to recall how much violence is occurring in the relationship and to counteract their normal tendencies to underestimate the violence. This is an important part of the process of risk assessment using the DA.

As indicated in the directions printed on the DA, practitioners and battered women should regard a higher score (adding all yes responses) on the DA as an indication of higher risk. The results of this analysis suggest that for practitioners working with battered women, a score of 4 or higher should be considered as indicating serious risk, and great assertiveness should be used in safety planning. The risk factors of batterer threats or prior use of a weapon and threats to kill should be considered particularly dangerous. Perpetrator access to a gun needs to be assessed and a careful inventory of all guns must be taken. The provisions of the Brady Bill prohibition against gun ownership for those convicted of domestic violence assault become especially important to enforce, and any order of protection should have firearm search and seizure provisions.

For criminal justice practitioners making decisions about batterer bail or sentencing, it should be kept in mind that at a cutoff score of 4 (greater than 3), almost 40 percent of women were not in the homicide group. It is not until a score of 7 to 8 or more is recorded that an acceptable level of correct identification of those who were not killed is reached and the DA can therefore be used in making criminal justice decisions about abusers.

These results indicate that any cutoff score of the DA is suggestive, not definitive, and that practitioners should use the instrument (like all of the intimate partner violence current risk assessment instruments available) within a process of risk assessment rather than as a definitive actuarial⁴³ (Roehl and Guertin, 1998; Quinsey, Harris, Rice, and Cormier, 1998) instrument with established cutoffs. Even so, it should also be noted that scores of 8 or 9 or more suggest both great risk and acceptable accuracy and should be kept in mind when using the DA.

Implications for Researchers

Although the study supported the use of the DA, more precision is needed in predicting abused women's risk of being murdered by their intimate partners. Weighting DA items according to their relative risk is a strategy that is being pursued. Refining assessment questions and perhaps adding others is another strategy. The researchers are examining DA items in light of other risk factors that were collected, such as estrangement, stalking, and partner unemployment. Finally, risk assessment for homicide followed by suicide and the killing of other family members requires further study. Whatever research strategies are undertaken to refine the DA, the items will be validated with battered women and domestic violence advocates before they are finalized. The development of the DA has always been carried out in close collaboration with women and

advocates. The wording of the items and the need for user-friendly administration and scoring will reflect advocate and survivor realities as well as research results.

Notes

¹ Modified text and figures from “Assessing Risk Factors for Intimate Partner Homicide” by Campbell, J.C. et al. (Issue no. 250, 2003) is printed with permission from the *National Institute of Justice Journal*.

² Baltimore, Maryland; Chicago, Illinois; Houston, Texas; Kansas City, Kansas and Missouri; Los Angeles, California; New York, New York; Portland, Oregon; St. Petersburg and Tampa, Florida; Seattle, Washington; and Wichita, Kansas.

³ The DA can be printed from <http://www.son.jhmi.edu/research/CNR/homicide/DANGER.htm>, which also gives directions regarding permission of use.

⁴ An actuarial instrument is one that provides weightings and published scores that have been shown through formal and independent research to actually *predict* violent outcomes.

References

Bennett, L., Goodman, L., and Dutton, M.A. (2000). “Risk Assessment Among Batterers Arrested for Domestic Violence.” *Violence Against Women*, 6 (11), 1190–1203.

Browne, A., and Williams, K. (1998). “Homicide Between Intimate Partners.” In M.D. Smith and M. Zahn (eds.), *Homicide: A Sourcebook of Social Research*. Thousand Oaks, CA: Sage Publications, pp. 149–164.

Campbell, J.C. (1995). *Assessing Dangerousness*. Newbury Park, CA: Sage Publications.

Campbell, J.C., Sharps, P., and Glass, N.E. (2000). “Risk Assessment for Intimate Partner Violence.” In G.F. Pinard and I. Pagani (eds.), *Clinical Assessment of Dangerousness: Empirical Contributions*. New York: Cambridge University Press, pp. 136–157.

Campbell J.C., Webster D., Koziol-McLain J., Block, C., Campbell, D., Curry, M., Gary, F., Glass, N., MacFarlane, J., Sachs, C., Sharps, P., Ulrich, Y., Wilt, S., Marganello, J., Xu, X., Schollenberger, J., Frye, V., and Laughon, K. (2003). “Risk Factors for Femicide in Abusive Relationships: Results From a Multi-Site Case Control Study.” *American Journal of Public Health*, 93(7), 1089–1097.

Greenfield, L., Rand, M., Craven, D., Klaus, P., Perkins, C., Ringel, C., Warchol, G., Matson, C., and Fox, J. (1998). *Violence by Intimates: Analysis of Data on Crimes by Current or Former Spouses, Boyfriends, and Girlfriends*. Bureau of Justice Statistics Factbook. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics, NCJ 167237.

- Johnson, H., and Sacco, V.F. (1995). "Researching Violence Against Women: Statistics Canada's National Survey." *Canadian Journal of Criminology*, 37(3), 182–304.
- McFarlane, J., Campbell, J.C., Wilt, S., Sachs, C., Ulrich, Y., and Xu, X. (1999). "Stalking and Intimate Partner Femicide." *Homicide Studies*, 3(4), 300–316.
- Moracco, K.E., Runyan, C.W., and Butts, J. (1998). "Femicide in North Carolina." *Homicide Studies*, 2, 422–446.
- Pataki, G. (1997). *Intimate Partner Homicides in New York State*. Albany, NY: New York State.
- Sharps, P., Campbell, J.C., Campbell, D.W., Gary, F., and Webster, D. (2001). "The Role of Alcohol Use in Intimate Partner Femicide." *The American Journal on Addictions*, 10(2), 122–135. (See this for a complete multivariate analysis of substance abuse of both the perpetrator and victim in this data.)
- Straus, M.Z., and Gelles, R.J. (1990). *Physical Violence in American Families: Risk Factors and Adaptations to Family Violence in 8,145 Families*. New Brunswick, NJ: Transaction Publishers.
- Quinsey, V., Harris, G.T., Rice, M.E., and Cormier, C. (1998). *Violent Offenders: Appraising and Managing Risk*. (1st ed.). Washington, DC: American Psychological Association.
- Roehl, J., and Guertin, K. (1998). *Current Use of Dangerousness Assessments in Sentencing Domestic Violence Offenders*. Pacific Grove, CA: State Justice Institute.
- Webster, C., Harris, G., Rice, R., Cormier, C., and Quinsey, V. (1994). *The Violence Prediction Scheme: Assessing Dangerousness in High-Risk Men*. Toronto, Canada: Centre of Criminology, University of Toronto.
- Weisz, A., Tolman, R., and Saunders, D.G. (2000). "Assessing the Risk of Severe Domestic Violence: The Importance of Survivor's Predictions." *Journal of Interpersonal Violence*, 15(1), 75–90.