

Intimate Partner Violence Victims' Accuracy in Assessing their Risk of Re-abuse

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Abstract Using four categories of accuracy (true positive, false positive, true negative, false negative), this study explored (1) how accurately intimate partner violence (IPV) victims are able to assess their risk of re-abuse; and (2) potential predictors of accuracy. Women seeking help for IPV ($N=246$) rated the likelihood that they would experience physical re-abuse in the coming year and then reported 18 months later whether those risks had been realized. Victim assessments were more likely to be right than wrong, and were subject to neither a pessimistic nor optimistic bias. In the multivariate analysis, significant/marginally significant predictors of the accuracy categories were the history of violence from this and former partners, level of substance

use, PTSD symptoms, and the recency of the violence. Among the more robust findings were the connection between level of stalking and true positives, and between substance use and false negatives. This study suggests that victim assessments have significant potential to inform practice, and deserve further exploration.

Keywords Intimate partner violence · Re-abuse · Danger assessment · Risk perception · Victim accuracy · Optimistic bias

Prediction of re-abuse or assessment of danger has become a major research focus in the area of intimate partner violence (IPV; see Bennett Cattaneo and Goodman 2005; Hilton and Harris 2005 for recent reviews). While this intensified focus is relatively recent for the field, it has always been a critical part of the lives of women coping with the ongoing threat of violence (Langford 1996; Stuart and Campbell 1989). Indeed, researchers are beginning to explore what victims have to teach the field in this regard. Two facts in particular underscore the importance of increasing our understanding of victim risk assessments. First, victims choose certain courses of action based on their assessments of how much danger they are in (e.g., Bell et al. 2003; Davies et al. 1998). Second, taking these assessments into account is often a key component of counseling victims or making system-related decisions (e.g., Bennett Cattaneo and Goodman 2007; Roehl et al. 2005). Knowledge about the accuracy of victims' risk assessments might be used to inform both of these processes.

In the two most rigorous examinations of this issue to date, the predictive validity of victim assessments was exceeded only slightly by Campbell's Danger Assessment,

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a commonly used 20-item measure of future risk (1986, 1995). First, Heckert and Gondolf (2004) interviewed the partners of 499 abusive men involved with batterer treatment and found that victims' assessments of risk at the time of intake significantly predicted re-assault over the course of the next 15 months, over and above risk factors identified by prior research, and at least as well as two out of three risk assessment instruments (the DA being the exception). Second, in a field test of four risk assessment instruments, following up an average of 9 months after recruiting participants from various community agencies, Campbell et al. (2005) found both victims' and risk assessment instruments' rates of accuracy in predicting re-abuse to be moderately high, with only the DA slightly stronger in most analyses. These studies mirror similar findings from Weisz and colleagues (2000) and Bennett Cattaneo and Goodman (2003) with victims of court-involved batterers.

In short we have learned that victims, similar to risk assessment instruments, are moderately accurate but imperfect in their risk perceptions. Research has yet to explore what predicts level of accuracy among victims. Further, existing research has used a dichotomous conceptualization of accuracy: victims are either right or wrong. (Although a few studies have used receiver operating characteristic (ROC) analysis to take into account the rate of true positives and true negatives, this too yields a single number (area under the curve) indicating degree of accuracy.) We believe this approach misses important nuances in this variable. Women predicting high risk who are not re-abused (false positive) are likely qualitatively different from victims predicting low risk who are re-abused (false negative), even though both are incorrect in their risk assessments. Likewise, though both "correct," women predicting high risk of re-abuse who are re-abused (true positive) and women predicting low risk of re-abuse who are not re-abused (true negative) also likely differ in important ways.

Building on these criticisms, this study sought to extend previous work in two ways: (1) by examining victims' rates and patterns of accuracy using a four (versus one or two)-category outcome; and (2) identifying predictors of victim membership in these four accuracy groups. Given the absence of an overarching theory to guide in the selection of predictors for this second focus, we used Bronfenbrenner's ecological framework (1988) to select factors at individual, interpersonal, and system levels that prior research and/or logic suggest are likely to influence accuracy. The section which follows reviews this research and logic. However, given the newness of this area, we view this study as exploratory, and refrain from making specific hypotheses about the connection between predictors and particular categories of accuracy.

Predictors of Accuracy

Individual Level Predictors: PTSD, Substance Use, and the Recency of Violence

At the individual level, a victim's risk assessment is likely to be influenced by her mental health at the time she makes the assessment. Among the legion of psychological consequences of IPV that have been identified, symptoms of posttraumatic stress disorder (PTSD) and substance abuse are particularly common among victims (Golding 1999; Kemp et al. 1995). Relevant to the current study, numerous studies have documented the tendency for individuals suffering from PTSD to selectively attend to, process, and remember threatening cues and information (Litz and Keane 1989). These results likely explain findings reported by Dutton et al. (2004) and Bennett Cattaneo (2007) that IPV victims with more symptoms of PTSD tend to perceive themselves as being at greater risk of re-abuse. But are those perceptions accurate? On the one hand, it is possible that victims suffering from PTSD are attuned to information that others might ignore but that is salient to determining their level of risk; on the other hand, PTSD might promote an excessive focus on anxiety-provoking information that does not substantially improve accuracy. This study provides more information about these possibilities.

Also well-documented among those suffering the after-effects of trauma (Golding 1999), *substance use* can be a means of putting distance between oneself and a painful reality. To the extent that such a coping strategy is successful, it would likely impair a victim's ability to think clearly about the details of her situation, including her assessment of her level of risk.

Finally, there is a general consensus that emotional responses to a traumatic event change over time, producing different symptom pictures in terms of mental health (Valentiner et al. 1996). It is unclear, however, how such changes might affect accuracy in risk perception. We include the *recency* of the last violent incident as a predictor to explore this question. One possibility is that shock or numbness immediately following an experience of abuse might reduce the victim's sense of alarm about future danger or make it difficult for her to recall information relevant to risk assessment (van der Kolk and Fisler 1995). However, it may also be that victims are more acutely aware of danger just after the event, before bruises fade. This study explores this issue as well.

Interpersonal Level Predictors: Prior Experiences of Abuse and Social Support

If risk assessment is conceived of as a skill that can be learned, it makes sense that over time victims might

become sensitive to cues and signals that reflect their partner's mood and forecast his behavior. Through a history with this abuser, victims might also have a sense of how certain events (e.g., being taken to court) are likely to influence him. Therefore, longer *relationship duration* and/or a longer and more severe *history of abuse in the relationship* should be related to increased accuracy. Experiences of *abuse in the context of other relationships* might increase accuracy for similar reasons.

Turning to the victim's social network outside of the abusive relationship, it seems likely that those with little social contact may be less able to accurately assess the dangerousness of their situation. Herman (1992) has written compellingly about this dynamic:

As the victim is isolated, she becomes increasingly dependent on the perpetrator, not only for survival and basic bodily needs but also for information and even for emotional sustenance...Inevitably, in the absence of any other point of view, the victim will come to see the world through the eyes of the perpetrator (p.81).

The concept of Stockholm Syndrome, wherein hostages develop sympathy for their captors and come to adopt their perspective on events, further supports this idea (Graham et al. 1988). Both *available social support*, or the degree to which a social support network exists, and the actual *use of the support network* are likely important in this regard.

System Level Predictor: Formal Support

Assisting the victim in evaluating her situation and in making plans to protect herself is often an express part of what happens when victims of IPV *access formal sources of help* such as the police, mental health professionals, shelters, or members of the clergy (Bell and Goodman 2001; Davies et al. 1998). One would hope that these professionals' knowledge of risk factors and their experience with similar situations would lead victims to be more accurate in their predictions of risk. This study explores that possibility.

Materials and Methods

Procedure

This study utilizes data collected in the first 18 months of a 4.5 year longitudinal study of 406 female IPV victims seeking help from shelter, civil court, and/or criminal court in a mid-Atlantic city. (For more details about the overarching study, see Goodman et al. 2003). In that larger study, participants were recruited during the first 30 days of their stay in shelter ($n=68$); as they began the process of

petitioning for a civil protection order ($n=220$); or as they exited the courtroom following the final disposition of their criminal cases ($n=118$). Eligible participants were over 18, English-speaking, and without significantly impaired mental status at first contact with interviewers. Of those approached, 116 (29%) women refused to participate, largely due to time constraints. This study used only those participants with data at Time 1 and the 18 month follow-up.

As part of the recruitment protocol, research assistants informed participants that they would be contacted by phone every 3 months for at least the next year; they then asked participants for detailed information about safe numbers and times to call. At the 1 year follow-up, women were asked if they would like to participate in follow-up calls every 6 months for the duration of the study. Follow-up calls took, on average, 45 minutes to an hour to complete and were conducted by four female clinical psychology doctoral students. Participants were paid \$20 for each of the first four interviews (T1–T4), \$50 for the interview at 12 months (T5), and \$20 for the interview at 18 months (T6).

Measures

Demographic Information At Time 1, participants were asked to report general demographic information including their age, level of education, employment status, income level, and number of children. We include these data here for descriptive purposes.

Individual Level Predictors We used the PTSD Checklist (PCL; Blanchard et al. 1996; Weathers et al. 1993, October) to measure symptoms of PTSD. This 17-item scale uses a one ("not at all") to five ("extremely") Likert scale to assess the extent to which participants have experienced PTSD symptomatology in the past month. Summing responses to produce an index of severity of symptoms, we obtained a Cronbach alpha of 0.94 for this study.

We measured *substance use* with three items that asked the participant to indicate how often she had drunk any alcohol, had drunk until she was intoxicated, or had used street drugs in the past month; response choices for these items were on a Likert scale from one ("not at all") to five ("almost daily"). Our total score consisted of the sum of participant responses to the individual items. The Cronbach alpha was 0.68.

In order to measure the *recency of the assault*, participants were asked to report "the most recent time he did any of these [physically abusive or stalking-related] things to you." Response choices were within the last week; last month; last 3 months; last 6 months; last 12 months; or more than a year ago, providing an ordinal measure of recency.

Interpersonal Level Predictors To examine the history of abuse in the victim's current relationship, we asked victims to complete measures assessing experiences of physical abuse, psychological abuse and stalking. Specifically, to measure *physical abuse*, we used a yes/no version of the conflict tactics scale-2 (CTS; Straus et al. 1996) to ask participants whether they had experienced specific acts of physical abuse, sexual abuse, or injury related to abuse in the last year. For this study, we modified the sexual abuse subscale by removing items that asked about the perpetrator "insisting" on sex without the use of force or threats and by adding a new item: "I had sex with him because I was afraid of what he would do if I didn't." These changes reduced this subscale from seven to four items. To obtain a general measure of the severity of physical violence, we used the percentage of items endorsed across subscales as our outcome. The Cronbach alpha for this scale was 0.87.

We assessed *psychological abuse* with a short form of the psychological maltreatment of women inventory (PMWI-Short Form; Tolman 1999). This measure asks participants the degree to which they have experienced various behaviors representing dominance/isolation or emotional/verbal abuse in the past year. Participants' responses on a one ("never") to five ("a lot") Likert scale were summed to provide an overall measure of psychological abuse. The Cronbach alpha for this scale was 0.90.

We modified the National Violence Against Women Survey's seven-item measure of *stalking* (Tjaden and Thoennes 2000) by simplifying the wording of several questions, adding one item ("He hurt or killed my pet"), and eliminating two others ("He left unwanted items for me to find" and "He tried to communicate in other ways against my will"). Participants responded "yes" or "no" to having experienced these forms of stalking in the last year; the percentage of items they endorsed served as our measure. The Cronbach alpha for this scale was 0.82.

The *length of the participant's relationship with her partner* and the *duration of the abuse* (the length of time between the first and most recent incident of physical abuse or stalking) were assessed with single questions.

To assess her *experiences of IPV with previous partners*, each participant was asked whether any intimate partner other than the current perpetrator had ever been physically violent with her; had sexually abused her; had physically injured her; or had physically injured her to the extent that she required medical attention. Using percentage of items endorsed as our measure, the Cronbach alpha was 0.78.

We assessed participants' perceptions of *available social support* using the 40-item true-false Interpersonal Support Evaluation List (ISEL; Cohen et al. 1985). The ISEL measures perceived support with four subscales asking about the availability of four types of support (tangible,

appraisal, esteem and belonging). Given the high correlations among these subscales, we followed House and Kahn's (1985) recommendation to use a total summary score. Using percent endorsed of all ISEL items as our measure, we obtained a Cronbach alpha of 0.93.

Finally at the interpersonal level, we assessed use of support from family and friends—*informal helpseeking*—with the intimate partner violence strategies index, a measure developed in a prior study using this same dataset (Goodman et al. 2003). Informal helpseeking is one of six subscales covering the range of strategies that victims use to respond to IPV. It asks whether a participant has ever used any of three strategies to cope with the violence in her relationship: talked to family and friends about what to do to protect herself or her children; stayed with family or friends; or sent her children to stay with family or friends. We used percent of items endorsed as our predictor. The Cronbach alpha for this subscale (0.54) suggested only moderate internal reliability. However, the items on this scale represent distinct behaviors under the same conceptual umbrella and do not necessarily tap into an underlying construct, making internal consistency an inappropriate measure of its reliability (see Goodman et al. 2003). We therefore did not view this low Cronbach alpha value as a reason to exclude the scale.

System Level Predictors To assess *formal help-seeking* we used two subscales of the intimate partner violence strategies index just described. We combined the legal helpseeking and formal helpseeking subscales to create an index of the degree to which participants had ever sought help from the civil or criminal court system, legal aid, their workplace, clergy, medical professionals, counselors, or shelters. Percentage of items endorsed served as our predictor. The Cronbach alpha for these combined subscales was 0.84.

Dependent Variable: Victim Accuracy Grouping women into our four accuracy categories required several steps and some difficult decisions. Two overarching decisions shaped the final outcome: First, we were committed to constructing the four categories (true positive, etc.) described earlier because of their practice-relevance and connection to prior research. Second, we believed that in practice, professionals are likely to be interested in a victim's assessment of the general danger posed by the batterer rather than the danger that he will engage in a specific behavior. We therefore collapsed across items both in the victim's assessment of risk, and in any re-abuse she experienced.

In order to measure this specific type of accuracy, we first used the Time 1 data to determine each participant's overall assessment of her *risk of being re-abused* during

the next year. Victims rated on a one (low risk) to five (high risk) scale the likelihood that their partners would (1) physically injure them; and (2) try to kill them within the next year.¹ We combined ratings of risk on these two items ($r=0.84$) into a sum score ranging from two to ten. We then divided participants into groups based on whether they predicted a lower (five and below; $n=170$) or higher (seven and above; $n=76$) risk of violence. We dropped from consideration those participants whose assessments were at the midpoint (6; $n=35$), rather than arbitrarily placing them in one category or another². This left a sample size of 246 for our analyses.

Next, we examined the re-abuse actually experienced by each participant during the next 18 months, as reported at Time 6³. Again, we were interested in the victim’s ability to predict any re-abuse, as opposed to re-abuse of a specific type. We thus chose to collapse across our violent re-abuse items (Cronbach alpha= 0.92) to create a single dichotomous item (did/did not experience at least one type of violent re-abuse). Our re-abuse variable thus indexed experiences of physical assault, injury, and attempts to kill participants.

Finally, using both victims’ Time 1 assessments of risk and re-abuse status at Time 6, we divided the 246 women in our sample into the four accuracy categories (true/false positive, true/false negative) summarized in Table 1.

Statistical Analyses

In our *preliminary data analyses*, we calculated correlations (see Table 2), ANOVAs, and chi-square statistics to ensure that we had met the assumptions underlying our planned statistical analyses and to examine the generalizability of the sample.

In the first of the study’s *primary analyses*, we used the Fisher’s Exact and McNemar’s chi-square tests on our risk

Table 1 Summary of accuracy categories

Time 1 prediction of risk	Re-abused before Time 6		Total
	No	Yes	
Low	True Negatives 134	False negatives 36	170
High	False Positives 48	True positives 28	76
Total	182	64	246

Cell values = number of participants in that category.

prediction (low/high) and re-abuse (yes/no) variables to help us determine whether participants were evenly distributed across accuracy category groups. Given that our groups were based on re-abuse status and given that re-abuse occurred at a relatively low rate (26%⁴), we could not directly compare the absolute numbers in our four categories. These tests compare the number of observed cases for the off-diagonal (Fisher’s Exact) and the diagonal (McNemar) cells with the number of cases that would be expected based on the distribution of given variables in the sample as a whole, allowing us to take this base rate issue into account.

We used unordered multinomial logistic regression to conduct the second of the study’s primary analyses. An extension of logistic regression to cases where the dependent variable has more than two categories, multinomial logistic regression examines the ability of predictors to distinguish participants in a reference category from participants in each of the remaining categories. Since we were interested in the relationships among all of our four accuracy groups, we calculated effects and standard error values with each group taking a turn serving as the reference category.

Predictors with a p value less than 0.25 associated with their univariate likelihood ratio test were included in the multivariate model (Hosmer and Lemeshow 1989). We began our examination of the multivariate results by using the log-likelihood technique (model chi-square test) and Pearson and deviance criteria to evaluate the overall fit of our model (Tabachnick and Fidell 2001). Then, in order to minimize our family-wise error rate, we used likelihood ratio tests to evaluate the improvement in model fit when each predictor was added to the model. Only when the likelihood ratio test for a given predictor was significant did we examine the parameter estimates for that variable. Among these predictors with significant likelihood ratios,

¹ Due to an error in data collection in the larger longitudinal study from which these data are drawn, a third item assessing participants’ sense of the risk that their partner would physically assault them in the next year was omitted at Time 1. We were able to include the physical assault item at Time 6.

² It is important to note that these women were not necessarily individuals who were unsure about what would happen during the next year. Given our use of a sum score, some of these participants were actually quite sure that one event would happen in the next year (rating of 5) but also quite sure that another would not (rating of 1).

³ It would have been optimal to have a more precise match between the time frame for which Time 1 risk was assessed (one year) and the time period for which re-abuse was assessed (18 months). This was not feasible given the data available. We felt however that victims’ assessments of risk over the next year and their assessments of risk over the next 18 months would likely be very similar, such that the mismatch would have minimal impact on the validity of our results.

⁴ Though low overall, this rate is comparable to what other studies with similar follow-up periods have found for rates of re-abuse (Bennett Cattaneo and Goodman 2005).

Table 2 Correlations among predictor variables

Predictor	1	2	3	4	5	6	7	8	9	10	11
1. PTSD symptoms	–										
2. Substance use	0.20**	–									
3. Recency of the violence	0.15**	0.06	–								
4. Length of relationship	0.06	–0.05	0.06	–							
5. Duration of the abuse	0.12*	–0.03	0.00	0.39**	–						
6. Physical abuse	0.50**	0.15**	–0.08	–0.05	0.23**	–					
7. Psychological abuse	0.53**	0.04	–0.15**	0.04	0.20**	0.55**	–				
8. Stalking	0.38**	0.15**	–0.08	–0.01	0.06	0.52**	0.54**	–			
9. Previous partner violence	0.19**	0.11*	–0.02	–0.13**	–0.04	0.20**	0.16**	0.12*	–		
10. Social support available	0.34**	–0.16**	0.08	0.11*	–0.05	–0.29**	–0.23**	–0.09	–0.18**	–	
11. Use of informal support	0.30**	0.05	–0.11*	0.06	0.09	0.21**	0.36**	0.22**	0.08	–0.06	–
12. Use of formal support	0.25**	0.05	–0.01	0.04	0.07	0.29**	0.28**	0.27**	0.17**	–0.12*	0.48**

* $p < 0.05$ ** $p < 0.01$

the Wald chi-square statistic was used to determine which accuracy groups a given predictor significantly distinguished from one another.

Results

Description of Participants

Demographics and Predictors More than half (59%) of the women in our sample were recruited as they sought a civil protection order against their partners; 27 and 14% were recruited from criminal court and shelter, respectively. Participants were overwhelmingly African American (79%) and deeply impoverished: despite the fact that 63% were employed either full- or part-time, 92% had a personal income of less than \$30,000 a year; 68% made less than \$15,000 a year. Increasing their economic burden, 89% were raising at least one child. On average, participants were 33 years old ($SD=8.76$), and almost three-quarters (74%) had completed high school.

Table 3 summarizes the characteristics of the sample with respect to our predictor variables. It is worth highlighting that levels of abuse were high in the year prior to Time 1, with 87% reporting at least one act of “severe” violence such as being kicked, “beat up,” assaulted with a knife or gun, or threatened or forced into sex. Levels of psychological abuse were similarly high. Not

surprisingly then, levels of PTSD were also high, with 70% of participants meeting criteria for diagnosis, using the guidelines of Blanchard et al. (1996).

Risk, Re-abuse and Accuracy At T1, participants on average rated the risk that the abuser would physically injure them in the next year a 2.43 out of 5 ($SD=1.61$) and the risk that he would try to kill them a 2.22 out of 5 ($SD=1.57$). When we summed these items and dichotomized the result into predictions of low versus high risk (as described earlier), the majority of our sample (69%) felt they were at relatively low risk of re-abuse while a significant minority (31%) felt they were at high risk. At Time 6, 25% of women stated that their abuser had physically assaulted them in the last 18 months; 18 and 7% said he had injured or tried to kill them, respectively. Collapsing these categories, 26% of our sample had been re-abused by Time 6, while 74% had not. Table 1 summarizes this information.

Generalizability of the Sample

Participants from the overarching study ($N=406$) were dropped from our analyses for one of two reasons: First, 125 (31%) of the original participants were not reached at the 18 month follow-up. Second, 35 (12%) of the remaining sample were dropped because their total score was at the midpoint (6) of the risk assessment scale. Our chi-square and ANOVA analyses revealed that those

Table 3 Sample descriptives

Variable	Mean	SD	Range
PTSD symptoms	47.06	18.13	17–85
Substance use	4.36	2.17	3–15
Recency of the violence	2.18	1.32	1–6
Length of relationship	77.41 months	75.51 months	6 weeks–35 years
Duration of the abuse	26.26 months	44.90 months	0–288 months
Physical abuse ^a	0.40	0.23	0–0.94
Psychological abuse	44.52	13.49	13–65
Stalking ^a	0.36	0.28	0–1
Previous partner violence ^a	0.27	0.34	0–1
Social support available ^a	0.69	0.23	0.1–1
Use of informal support ^a	0.56	0.33	0–1
Use of formal support*	0.45	0.26	0–1

^a Percent endorsed (see measures).

reached at follow-up differed from the total sample only with respect to recruitment site: a greater proportion of participants recruited from the shelter and from the criminal court were not reached than were participants recruited while obtaining a restraining order [$X^2(2)=7.18, p=0.03$]. With respect to those at the midpoint of the risk assessment scale, we found that at T1, these women reported on average a longer duration of violence (26.3 and 15.9 respectively; $p=0.02$) and a higher level of PTSD symptoms (53.3 versus 47.1; $p=0.02$) than did women in our sample. The reason for these differences is unclear.

How Accurate Are Victims? Chi-square and McNemar Results

We used Fisher’s Exact Test to determine whether, based on the distribution of responses in the sample as a whole, participants fell into the “correct” (true positive/negative) or “incorrect” (false positive/negative) categories more than we would expect. The chi-square was significant ($p=0.01$), with victims more likely to be correct than incorrect. However, when we used the McNemar test to evaluate participants’ distribution across our four categories, we found that participants were *not* more likely to be

correct or incorrect in specific ways ($p=0.23$)—that is, true positive vs true negative or false positive vs false negative.

Predicting Accuracy Category Membership: Multinomial Logistic Regression Results

Univariate Analyses Table 4 presents the Wald chi-square statistics obtained in the univariate multinomial logistic regressions. For the continuous variables, odds ratios were calculated with reference to an increment of one standard deviation. At the univariate level, all our predictors except length of the relationship and duration of the violence were significantly related to accuracy category membership at the $p<0.25$ level, and were thus included in the multivariate analyses. In fact, all but one of our predictors (prior experiences of violence) significant at $p<0.25$ were also significant at the $p<0.05$ level.

Multivariate Analyses The multivariate multinomial logistic regression model, presented in Tables 5 and 6, considered predictors’ effects relative to each other. Overall, the model fit the data well (Pearson $X^2(705)=659.91, p=0.89$; deviance $X^2(705)=471.45, p=1.00$; model $X^2(30)=108.30, p=0.0001$) and accounted for 39% of the variance using Nagelkerke’s R^2 . Using likelihood ratios to compare models with and without each predictor, the inclusion of the PTSD, substance use, and stalking variables each significantly improved model fit. Experiences of IPV from previous partners ($p=0.07$), CTS scores ($p=0.09$), and the recency of the violence ($p=0.10$) were marginally significant in this regard.

Because of the multiple comparisons among categories, our results are complex. The reader is directed to Table 6 if there are particular comparisons of interest (e.g., true positives versus false positives). Here we review results by predictor. With regard to PTSD, when all other variables

Table 4 Univariate likelihood ratios for predictors of accuracy

Predictor	Chi-square	df	p value
PTSD symptoms	41.02	3	0.0001
Substance use	10.35	3	0.02
Recency of the violence	10.88	3	0.01
Length of relationship	2.87	3	>0.25
Duration of the abuse	2.85	3	>0.25
Physical abuse	35.43	3	0.0001
Psychological abuse	37.47	3	0.0001
Stalking	41.91	3	0.0001
Previous partner violence	6.26	3	0.1
Social support available	8.06	3	0.05
Use of informal support	18.03	3	0.0001
Use of formal support	11.36	3	0.01

Table 5 Multivariate likelihood ratios for predictors of accuracy

Predictor	Chi-square	df	p value
PTSD symptoms	12.42	3	0.006
Substance use	12.24	3	0.007
Recency of the violence	6.32	3	0.10
Physical abuse	6.62	3	0.09
Psychological abuse	0.30	3	ns
Stalking	14.31	3	0.003
Previous partner violence	7.22	3	0.07
Social support available	0.25	3	ns
Use of informal support	4.50	3	ns
Use of formal support	3.83	3	ns
Overall model	108.30	30	0.0001

were held constant, a one unit increase in PCLS scores indicated that participants were 2.11 times more likely to be false positives than true negatives; 2.52 times more likely to be false positives rather than false negatives; and 2.10 times more likely to be true positives than false negatives. With a one unit increase in *substance use*, participants were more likely to be false negatives than true negatives (odds ratio=1.72), false positives (odds ratio=2.28), or true positives (odds ratio=1.84). Finally, those with higher levels of *stalking* were significantly more likely to be true positives than true negatives (odds ratio=2.76), false positives (odds ratio=2.34) or false negatives (odds ratio=3.61).

With regard to the three marginally significant variables, as *prior experiences of IPV* increased, participants were 1.57 times more likely to be true negatives than false positives; and 1.91 times more likely to be false negatives than false positives. Higher *physical abuse* scores indicated it was almost twice (odds ratio=1.93) as likely that a participant would be a false negative as a true negative. An increase in *the recency of the violence* made it 1.75 times more likely that a participant would be a true negative than a false positive.

Discussion

Limitations

Results of this study should be considered within the context of two sets of limitations. First, there are limitations to generalizability. This sample consisted of low-income, primarily African American women, and it is unclear the extent to which our results generalize beyond this population. Also, participants were seeking help for IPV; this likely puts them above a certain threshold of risk perception compared to women who are not seeking help. The second set of limitations represents challenges in this area of work that might be addressed in the future. Like many others, this

Table 6 Multivariate parameter estimates, standard errors, WALD values, and odds ratios for prediction of accuracy

Predictor	Comparison					
	True neg vs false neg	True neg vs false pos	True neg vs true pos	False neg vs false pos	False neg vs true pos	False pos vs true pos
PTSD symptoms	0.01 (0.01); 0.49; 1.20	-0.04 (.01); 8.09**; 0.47	-0.03 (0.02); 2.82; 0.57	-0.05 (0.02); 8.30**; 0.40	-0.04 (0.02); 3.85*; 0.48	0.01 (0.02); 0.26; 1.20
Substance use	-0.25 (0.09); 7.40**; 0.58	13 (0.11); 1.50; 1.33	0.03 (0.11); 09; 1.07	0.38 (0.12); 0.10**; 2.28	0.28 (0.12); 5.66**; 1.84	-0.10 (0.12); 0.65; 0.81
Recency of the violence	0.10 (0.16); .39; 1.14	.42 (0.18); 5.56*; 1.74	0.13 (0.21); 0.39; 1.19	.32 (0.22); 2.18; 1.53	0.03 (0.24); 0.02; 1.04	-0.29 (.24); 1.46; 0.68
Physical abuse	-2.85 (1.18); 5.82*; 0.52	-1.44 (1.08); 1.8; 0.72	-1.05 (1.45); 0.53; 0.79	1.41 (1.38); 1.04; 1.38	1.69 (1.69); 1.13; 1.48	0.39 (1.55); 0.06; 1.09
Psychological abuse	-0.01 (0.02); 0.08; 0.93	-0.003 (0.02); 0.02; 0.96	-0.02 (0.03); .26; 0.81	0.003 (.03); 0.01; 1.04	-0.01 (0.03); 0.08; 0.88	-0.01 (0.03); .14; 0.85
Stalking	0.96 (0.94); 1.05; 1.31	-.58 (0.84); 0.47; 0.85	-3.62 (1.18); 9.47**; 0.36	-1.54 (1.09); 2.01; 0.65	-4.58 (1.36); 11.37**; 0.28	-3.04 (1.23); 6.13**; 0.43
Previous partner violence	-.56 (0.62); 0.84; 0.83	1.33 (0.63); 4.43*; 1.57	.32 (0.72); 0.20; 1.11	1.90 (.77); 6.08**; 1.91	0.88 (0.83); 1.13; 1.35	-1.01 (0.80); 1.62; 0.71
Social support available	0.11 (0.93); 0.02; 1.03	.02 (0.91); 0001; 1.00	0.54 (1.12); 0.23; 1.13	-0.09 (1.12); 0.007; 0.98	.43 (1.27); .11; 1.10	0.52 (1.20); 0.19; 1.13
Use of informal support	-1.28 (0.71); 3.24; 0.65	-.69 (0.70); 99; 0.79	-1.26 (0.95); 1.73; 0.65	0.58 (0.88); 0.44; 1.22	0.02 (1.08); 0.0001; 1.01	-.56; (1.02); 0.30; 0.83
Use of formal support	1.56 (0.94); 2.72; 1.50	-.001 (0.86); 0.0001; 1.00	-.62 (1.08); 0.33; 0.85	-1.56 (1.10); 2.00; .67	-2.17 (1.27); 2.91; 0.57	-.62 (1.11); 0.31; 0.85

Cell values = beta (standard error); Wald; odds ratios are calculated in reference to the second group listed in each column

* $p < .05$. ** $p < .01$.

study did not take into account issues of exposure to risk over the follow-up period. For example, it is possible that some batterers were in jail for some period of time, meaning that some victims essentially did not have the opportunity to be correct, or alternatively were guaranteed being correct, in their predictions of whether or not their partner would re-abuse them. Finally, and perhaps most importantly, accuracy can be conceptualized in many ways. The multiple decisions we made in our conceptualization (and idiosyncrasies in our dataset), detailed earlier, represent only one of these. We make suggestions for ways to broaden and deepen our thinking about accuracy when we discuss the implications of our results.

Review of Findings

Level and Type of Accuracy

Notwithstanding these limitations, this study supports the findings of prior research that victims are able to assess their risk of re-abuse at a level greater than chance. In practical terms, when one combines categories where victims are accurate (true positives/negatives) and compares them to victims who are inaccurate (false positives/negatives) approximately two thirds (66%) of this sample assessed their risk accurately. Though the research reviewed earlier defined and measured accuracy in varying ways, it is notable that the rate of accuracy reported here is similar to that reported in other studies (63, 74, and 64%, in Campbell 1995; Bennett Cattaneo and Goodman 2003; and Heckert and Gondolf 2004, respectively).

While victims were more likely to be accurate than inaccurate in their predictions, they did not fall disproportionately into any of the four categories. That is, victims were equally skilled in predicting re-abuse as they were in predicting no re-abuse; and equally likely to be wrong through over-estimation of their risk as through under-estimation of their risk. This is interesting given that the field of social cognition has consistently found that people tend to exaggerate the likelihood of good things happening to them and to underestimate their vulnerability to a wide variety of negative outcomes (Weinstein 1980; Taylor and Brown 1988). This “optimistic bias” has been documented even among groups identified as “high-risk,” including battered women with respect to their predictions of how likely they are to return after leaving their abusive partner (Martin et al. 2000). In this study, however, victims did not appear subject to an optimistic bias or a systematic bias of any kind.

Although accurate more often than not and not subject to a systematic bias, participants’ predictions of re-abuse were of course not perfect. This begs the question: under what conditions are victims’ predictions more or less likely to be accurate?

Predictors of Accuracy

Our assumption in this study was that accuracy is a complex and dynamic variable, influenced by factors at multiple levels of victims’ experience. At the univariate level, most of the predictors examined in this study were significant, suggesting that they have some bearing on accuracy (see Table 4). This set of results supports our initial assumption, and we do not wish to downplay its importance; these predictors should certainly be included in future explorations of this topic. But when one includes a set of predictors such as these in a multivariate analysis, one is examining their impact relative to each other, and it is in this context that a small handful of predictors emerged as most influential. In the interest of parsimony, we focus here on the variables significant at the multivariate level. Further, we focus on comparisons within the high and low risk groups (true vs false positive, true vs false negative), since this is the information practitioners have when sitting down with victims. In other words, since practitioners can ask victims to assess their level of risk, comparisons within those categories are of particular interest. Other comparisons, while potentially interesting in other ways, are not as practice-relevant.

Individual Level Of our three predictor levels, the individual level fared best, with PTSD and substance use significant. Recency of violence was marginally significant at the multivariate level, but did not discriminate practice-relevant categories. With respect to PTSD, participants reporting more symptoms were two to two-and-a-half times more likely to be false positives (high risk; no re-abuse) than true or false negatives. In other words, when wrong, PTSD sufferers were more likely to overestimate than underestimate their level of risk. Recall that this trend was not present in the rest of the sample in this study; this group was distinct in this way. Given that hypervigilance—the perception of neutral cues as threatening—is often a significant component of post-traumatic symptomatology, these findings are not surprising. Perhaps contrary to what one might expect, however, PTSD did not discriminate between the two groups of women who saw themselves as high risk (true and false positives). In fact, PTSD scores were highest among women who were correct in their predictions that they would be re-abused: the true positives had a mean score of 60.12, with the next highest group being the false positives at 55.72. In this study, then, PTSD did predict the kind of error victims would make if they were incorrect, but it did *not* appear to increase the likelihood they would make an error.

In terms of substance use, women reporting higher levels were more likely to be false negatives (underestimating their risk) than any other group. This finding fits with the notion

that victims may use substances as an avoidant way of coping with ongoing abuse or threat of abuse. This coping comes at a price, however; in their attempts to disconnect from or avoid the difficult reality of their situation, victims may miss important information about their level of risk, seeing themselves as safer than they actually are.

Interpersonal Level Results from the interpersonal level variables were mixed. Our results with respect to *stalking* were clearest: Those with higher levels were likely to see themselves at high risk and to be correct in that assessment (they were more likely to be true positives than any other group). It may be that batterers who stalk leave more clues about their intentions than other batterers do. This seems a particularly policy-relevant issue given that stalking in the absence of physical assault is often taken less seriously by practitioners, particularly in terms of decisions related to arrest and prosecution (Brewster 2001).

In contrast, with increased severity of *physical abuse*, those who saw themselves at low risk were almost two times more likely to be incorrect than correct. Although prior research has found with relative consistency that the severity of physical violence predicts re-abuse (Bennett Cattaneo and Goodman 2005), studies have been mixed about the extent to which it influences victim perceptions of risk, and have suggested that this may be a factor that advocates attend to more than victims (Bennett Cattaneo 2007; Gondolf and Heckert 2003). However, we also know that greater severity of violence promotes helpseeking (e.g., Coker et al. 2000). Given these findings, a fruitful area for inquiry might be the conditions that shape the influence severity of abuse has on women's perceptions and behavior.

Three interpersonal level variables related to history of abuse did not contribute meaningfully to the multivariate prediction of accuracy. Although prior research has established that *psychological abuse* is associated with victims' appraisals of increased risk, here it was only related to their accuracy at the univariate level in this study, perhaps because other variables in the multivariate model were more directly relevant to the behavior victims were predicting (i.e., history of physical abuse). *Length of the relationship* was not significant in any analysis here, suggesting that mere experience with the batterer had minimal effects on accuracy; the actual experience of abuse with this partner was more important in this regard. Similarly, *duration of the abuse* did not in and of itself carry much weight in predicting accuracy. Though *experience of IPV from previous partners* was of marginal significance in predicting accuracy, it did not discriminate practice-relevant categories.

Finally, although all the social support variables were significant at the univariate level, none were significant in

the multivariate model. With respect to *available social support*, it may be that we considered this construct too broadly. Perhaps a measure assessing specific aspects of social support, particularly assistance directly targeting a victim's abusive experiences or containing particular messages, would more significantly impact accuracy. In contrast, the behaviors representing *use of support from family and friends* were quite specific, and may not have tapped aspects of support affecting accuracy.

System Level Our results with respect to *formal helpseeking* were not significant at the multivariate level. However, all of our participants were seeking help, and the vast majority was court-involved. While participants reported different levels of experience with particular sources of help in the past, we did not have a great deal of information about their most recent contact. For a more in-depth consideration of this variable, future studies might compare women who sought no formal help to women who sought various kinds of help, and participated in particular kinds of risk assessment or safety planning.

Implications for Research

This was an exploratory study that we hope will provide a starting place for further investigation. We see two ways to extend the scope and depth of this study: modifying the conceptualization of accuracy, and continuing to explore predictors of it. With respect to the former, future work might consider victims' ability to correctly predict a wider range of abusive behaviors including stalking and psychological abuse. Further, given that qualitative work has documented the dynamic nature of victim risk assessments (Gondolf and Heckert 2003; Langford 1996; Stuart and Campbell 1989), we might explore how accuracy varies over time. It might also be possible to view accuracy on a continuum as opposed to categorically, or to divide risk perception into several intervals instead of just high and low, matching these perceptions to levels of re-abuse. We do not believe there is a single best way to construe this variable. In contrast, our understanding would be most enriched by exploring it in multiple ways.

In terms of particular variables that deserve further investigation, we have already made some suggestions with respect to the severity of physical abuse and the nature of informal and formal helpseeking. We would also add PTSD, depression, and confidence in risk assessment to this list. Our findings with respect to PTSD are intriguing, and suggest that posttraumatic symptomatology may not obfuscate thinking about risk. But in our sample, PTSD was quite prevalent, and the risk of repeat abuse high compared to other populations. It is unclear whether symptoms of PTSD differentially influence accuracy in groups more

varied in these characteristics. We were unable to examine the influence of symptoms of depression, given their high correlation with symptoms of PTSD. This variable should be investigated in its own right, particularly given studies documenting a “depressive realism,” such that people who are depressed may be more realistic than non-depressed individuals about their chances for successfully avoiding negative outcomes (Alloy and Abramson 1988). Also, Eiser (2001) postulated that the primary contributor to assessments of risk is confidence, in that if one feels that an outcome is hard to predict and hard to control, one feels more threatened by it. Certainly victims of IPV are likely to vary along this dimension, but it is unclear how it might affect their accuracy. Finally, the stages of change model (Brown 1997; Prochaska and DiClemente 1982) has received considerable attention as a rubric for understanding how victims respond to the violence in their lives. The extent to which victims’ thinking at various stages of change might influence their level of accuracy might also be useful to explore.

Conclusion

This study adds to the small body of work highlighting the importance of considering IPV victims’ perspectives (e.g., Bennett Cattaneo 2007; Bennett Cattaneo and Goodman 2007; Davies et al. 1998; Heckert and Gondolf 2004). Although we also identify areas of relative weakness, overall, our findings document victims’ considerable strengths in accurately assessing their risk of re-abuse. Future efforts in the field should take both sides of this coin into account, seeking to learn from victims even as we work continuously to improve our ability to provide them aid.

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