

## Intimate partner violence incidence and continuation in a primary care screening program

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### **Abstract:**

There are few longitudinal estimates of intimate partner violence (IPV) incidence and continuation. This report provides estimates of IPV incidence and continuation in women receiving health care in clinics participating in an IPV assessment and services intervention study. The Women's Experience with Battering Scale was used in combination with questions addressing physical and sexual assault to annually screen women for IPV. Between April 2002 and August 2005, 657 women in rural South Carolina consented and were screened at least twice. Among those with a current partner ( $n = 530$ ), the majority (86.2%) had never experienced IPV. Among prevalent victims, IPV continued over time for 37%. IPV continuation rates were higher among older women and those who considered abuse as a problem in their relationship. Of those women who were IPV negative at time 1, IPV incidence at time 2 was 4.2%. A higher score on the Women's Experience with Battering Scale at time 1, a marker of psychological abuse, was a strong predictor of physical IPV incidence ( $p_{\text{trend}} = 0.0001$ ). These data suggest that the incidence of IPV over a short follow-up period is relatively low and that the majority of IPV desists over this short follow-up period.

**Keywords:** crisis intervention | domestic violence | mass screening | women

### **Article:**

One of four US women has been physically or sexually assaulted or has been stalked by an intimate partner during her lifetime (1). A recent 10-country, population-based survey conducted by the World Health Organization reported that 15–71 percent of women had been physically or sexually assaulted by an intimate partner and that approximately half of this proportion were currently experiencing partner violence (2). Prevalence estimates for current intimate partner

violence (IPV) among women receiving care in US primary health care settings range between 7 percent and 29 percent (3–7). Although the prevalence of partner violence is now well documented, few epidemiologic studies have estimated the incidence and continuation of IPV. Mouton et al. (8), using prospective data from the Women's Health Initiative Study of postmenopausal women, reported a 3-year incidence rate of 2.8 percent for physical partner violence.

The aim of this report is to provide estimates of IPV incidence and continuation among women currently in an intimate relationship who attended a primary health care clinic and to explore correlates of IPV incidence and continuation. The study population consisted largely of low-income women who sought primary health care at participating clinics. Women aged 18 years or older were eligible for clinical assessment of physical assault, sexual assault, and psychological battering by a current or past partner. Women who reported IPV were offered an intervention corresponding to their clinic and participation in a 2-year cohort study. Details of the intervention are provided elsewhere (9). This report uses data from an ongoing prospective study of IPV assessment and intervention conducted in health care clinics in rural South Carolina. The prospective nature of the study design, as well as characterizing IPV incidence and continuation by type, makes this work novel. In this brief report, the authors do the following: 1) estimate IPV incidence by type (physical/sexual assaults or psychological battering); 2) estimate IPV continuation by type; and 3) examine factors related to IPV incidence and continuation. There is limited evidence that psychological abuse may be a predictor of subsequent physical IPV in a couple (10). In this short-term prospective study, we determined whether higher psychological abuse scores, defined on the basis of the Women's Experience with Battering Scale, predicted incidence of IPV assaults and IPV continuation.

## **MATERIALS AND METHODS**

### **Study setting**

Women who sought care at participating rural health care clinics between April 2002 and August 2005 in the Pee Dee Region of South Carolina were invited to participate in the current study. The Pee Dee Region of South Carolina comprises the following counties: Chesterfield, Darlington, Dillon, Florence, Marion, Marlboro, and Williamsburg. All participating clinics served women of low socioeconomic status.

### **Intimate partner violence screening instrument and process**

Nurses at eight clinics in rural South Carolina conducted annual IPV assessments with women 18 years of age or older. Clinic nurses explained the study to eligible women, obtained consent, and administered the IPV assessment instrument in a private examination room. Intimate partners were rarely present during the examination, but if they were, IPV assessment was not conducted and was rescheduled for the next visit. Nurses administered the questionnaire to all patients to avoid reading difficulties. The institutional review boards of the University of Texas Health Science Center, the University of South Carolina, and the Centers for Disease Control and Prevention approved this study protocol.

## **Intimate partner violence assessment instrument**

As recommended by the Centers for Disease Control and Prevention, our definition of IPV included physical violence, sexual violence, and psychological/emotional abuse (11). During the assessment, nurses asked consenting women to think about their current male partner or, if they did not have a current partner, their most recent male partner. Partner was defined as “someone you have been married to, dated, or had a sexual relationship with.” Nurses then asked a series of questions assessing psychological battering, using the 10-item Women's Experience with Battering (WEB) Scale (12–14), and physical or sexual assault in the women's current or most recent relationship, using two questions based on the Abuse Assessment Screen (15). The WEB Scale captures the extent to which a woman experiences vulnerability, loss of power and control, and entrapment as a consequence of her partner's exercise of power through the patterned use of physical, sexual, psychological, or moral force (13). Women who agreed with two or more of the WEB Scale items were considered positive for battering. In this study, the WEB Scale was simplified by limiting the response options to agree or disagree for each of the 10 items. A validation analysis for this revision of the WEB Scale indicated that the dichotomous response option of agree/disagree with two or more of 10 statements has a sensitivity of 79.8 percent, a specificity of 99.4 percent, and a positive predictive value of 96.6 percent when compared with the full scale of response options (ranging from 0 to 60 points).

We combined the assault and battering questions into a three-level variable of IPV experience: those experiencing assaults (any physical or sexual assaults with or without battering), those experiencing battering alone (with no physical/sexual assault), and those experiencing no IPV. Psychological battering was then defined on the basis of experiencing no assaults yet scoring as battered according to responses to the WEB Scale ( $\geq 2$  of 10 items).

At time 1, women were also asked about assault and psychological battering by any other partner in the past 5 years (referred to as “past IPV”). We measured past assault by asking the following: “Has any other partner, in the past five years, been physically violent toward you? By violent I mean did he punch, kick, hit, shove, slap, choke or physically attack you in other ways that could result in an injury. It also means being made to do sexual acts when you don't want to.” We measured past psychological battering by asking the following question, combining three WEB Scale items into one question: “Has any other partner, in the past five years, made you feel scared without laying a hand on you, ashamed of the things he does to you, or made you feel like you have to react in a certain way to him?”

Nursing staff were encouraged to attempt IPV screening annually for all women independent of past IPV screening results or a prior history of IPV. The same assessment tool, administered by the same nursing staff, was used at time 1 and time 2 (and later screening). For this analysis, we included all women who consented to and were screened at least twice. Because we were interested in the incidence and continuation of IPV based on the second assessment, we restricted our analyses to those with a current partner at time 1 who were therefore at risk of IPV continuation with an abusive partner or at risk of IPV incidence by a current male partner.

## **Correlates of current intimate partner violence experienced**

Because the focus of the parent project was evaluation of the IPV screening and intervention program, we collected extensive data on those women who screened as experiencing IPV. We have few demographic data on women who consent to IPV screening and screen as IPV negative. The only demographic data available for all screened women were age and whether the woman was currently in an intimate relationship with a male partner. The woman's age at time 1 and past IPV were explored as predictors of IPV by a current partner at time 2 by use of the hierarchical categories for IPV described above. In separate models, the women's WEB Scale score of 0, 1, or 2 or more at the first assessment (time 1) was hypothesized as a predictor of IPV incidence and continuation at time 2.

## **Statistical methods**

All analyses were conducted using SAS, version 9, statistical software (SAS Institute, Inc., Cary, North Carolina). Using the hierarchical categories of IPV, we analyzed IPV prevalence at baseline and IPV incidence and continuation between time 1 and time 2. Rates and 95 percent confidence intervals around this point estimate of IPV prevalence, incidence, and continuation were calculated for any type of IPV, assaults, and psychological battering alone.

Unconditional logistic regression (16) was used to explore the following correlates of IPV prevalence, incidence, and continuation in separate models: age group, IPV in past relationship by type (any IPV, assaults, or psychological battering alone), WEB Scale score at time 1 (0, 1,  $\geq 2$ ), and whether the woman saw IPV as a problem in her relationship (for IPV continuation only).

## **RESULTS**

### **Refusal rates and response rates for intimate partner violence screening**

Between April 2002 and August 2005, nurses attempted to conduct IPV screening for 6,064 women attending participating clinics. A total of 381 women (6.3 percent) were not approached for screening because of illness ( $n = 121$ ) or because of the presence of family members ( $n = 156$ ) or partners ( $n = 104$ ) during the interview. IPV screening was attempted for an additional 738 women who were ineligible because they had not had a male partner in the last 5 years ( $n = 705$ ), could not speak English ( $n = 11$ ), or were mentally incapable of providing consent ( $n = 22$ ). Twenty-six percent of women ( $n = 1,281$ ) refused screening. Women who refused were on average older (44.2 (standard error: 13.3) years) than those who consented (39.5 (standard error: 12.6) years;  $p < 0.0001$ ). Although we did not formally assess the reasons for refusals, anecdotal information suggests that older women were less likely to perceive a need for screening for IPV. Data were unavailable to examine the differences in acceptance of screening by any other demographic characteristic. Overall, 74 percent ( $n = 3,664$ ) of eligible and at risk women completed the IPV screening. IPV screening took an average of 15 minutes to complete, including the time to recruit and to obtain consent.

Among the 657 women who consented and were screened at least twice, 592 agreed to screening each time it was offered (ranging from two to five times). Fifty-one (7.8 percent) women refused

screening on the first screening ( $n = 10$ ) or refused a later screening attempt ( $n = 41$ ). Fourteen women opted to be screened later when offered repeat screening and were rescreened.

### Prevalence of any intimate partner violence

A total of 657 women were assessed at both time 1 and time 2; 530 women reported that they currently had a male partner. The analysis was restricted to this latter group, because IPV incidence and continuation by a current partner were the outcome. As presented in table 1, at time 1, 73 (13.8 percent) women were identified as having recently experienced IPV by a current partner (prevalent IPV); 5.7 percent ( $n = 30$ ) were physically or sexually assaulted, and 8.1 percent ( $n = 43$ ) were psychologically battered alone. The prevalence of IPV assault was lower among women aged 50 or more years than among women aged less than 50 years. Women who had experienced IPV in a prior relationship in the past 5 years were more likely to currently be in a violent or abusive relationship.

**TABLE 1.** Intimate partner violence prevalence among 530 women who sought care at participating Pee Dee Region, South Carolina, rural health care clinics between April 2002 and August 2005 and were screened multiple times\*

	Prevalence (%) of current IPV†					
	Any current IPV at time 1		Current IPV assault at time 1		Current psychological battering at time 1	
	Prevalence (%)	95% confidence interval	Prevalence (%)	95% confidence interval	Prevalence (%)	95% confidence interval
Among all women	13.8	11.0, 17.1	5.7	3.9, 8.1	8.1	6.0, 10.9
By age (years) at first screen						
<40 ( $n = 177$ )	16.9	11.9, 23.5	6.8	3.7, 11.8	10.2	6.3, 15.8
40–49 ( $n = 151$ )	16.6	11.2, 23.7	8.6	4.9, 14.63	8.0	4.4, 13.8
50–63 ( $n = 202$ )	8.9	5.5, 13.9	2.5	0.9, 6.0	6.4	3.6, 11.0
$p_{\text{trend}}‡$	0.004		0.004		0.41	
IPV in a past relationship (within 5 years)						
Past IPV ( $n = 72$ )	34.7	24.1, 46.9	9.7	4.3, 19.6	25.0	15.9, 36.8
No IPV ( $n = 458$ )	10.5	7.9, 13.7	5.0	3.3, 7.6	5.5	3.6, 8.1

\*Restricted to women who reported that they had a current partner at time 1.

†IPV, intimate partner violence.

‡ $p_{\text{trend}}$  test of increasing age and decreasing IPV prevalence.

### Intimate partner violence incidence

Table 2 presents IPV incidence among women with a current partner who completed IPV assessment at both time 1 and time 2. The risk set for incidence of IPV at time 2 included women who did not report IPV by a current partner at time 1 (prevalence IPV excluded). IPV incidence was calculated for three categories: any IPV, assault, and psychological battering alone. As presented in table 2, among 457 women experiencing no IPV at baseline, 4.2 percent scored as experiencing any IPV at time 2 (incident any IPV), 4.2 percent reported an assault (incident assault), and 1.5 percent reported psychological battering alone (incident psychological battering). The majority of women who were IPV negative at time 1 remained negative at time 2

(95.8 percent). Table 2 also presents correlates of IPV incidence by type. Women who experienced IPV in any prior relationship showed an increased risk of assault at time 2; however, the incidence of psychological battering alone did not increase. Higher WEB Scale scores at the first assessment were also associated with an increased risk of assaults ( $p < 0.0001$ ).

**TABLE 2.** Intimate partner violence incidence with a current partner in a cohort of women who sought care at participating Pee Dee Region, South Carolina, rural health care clinics between April 2002 and August 2005 and were screened multiple times

	IPV <sup>†</sup> incidence (negative at time 1, positive at time 2)/PAR <sup>†</sup>					
	Any type of IPV ( $n = 457\ddagger$ )		Assaults ( $n = 500§$ )		Psychological battering alone ( $n = 457\ddagger$ )	
	Incidence (%)	95% confidence interval	Incidence (%)	95% confidence interval	Incidence (%)	95% confidence interval
Among all women	4.2	2.6, 6.5	4.2	2.7, 6.5	1.5	0.7, 3.3
By age (years) at first screen						
<40 ( $n = 147$ )	4.8	2.1, 9.9	3.6	1.5, 8.1	2.0	0.5, 6.3
40–49 ( $n = 126$ )	4.0	1.5, 9.5	5.8	2.7, 11.5	0.8	0.0, 5.0
50–63 ( $n = 184$ )	3.8	1.7, 8.0	3.6	1.6, 7.5	1.1	0.2, 4.3
$p_{\text{trend}}^{\nabla}$	0.90		0.54		0.78	
IPV in a past relationship (within 5 years)						
Past# IPV ( $n = 47$ )	6.4	1.7, 18.6	9.2	3.8, 19.7*	0	0.0, 9.4
No IPV ( $n = 410$ )	3.9	2.3, 6.4	3.4	2.0, 5.8	1.7	0.8, 3.6
By first WEB <sup>†</sup> Scale score (time 1)						
0 ( $n = 432$ )	3.9	2.4, 6.5	3.0	1.3, 4.6	1.6	0.7, 3.5
1 ( $n = 25$ )	8.0	1.4, 27.5	8.0	1.4, 27.5	4.0	0.2, 22.3
$\geq 2$ ( $n = 43$ ) (assaults only)	NA <sup>†</sup>		18.6	8.9, 33.9	NA	
$p_{\text{trend}}^{\ddagger\dagger}$	0.32		<0.0001**		0.31	

\* $p = 0.01$ – $0.05$ ; \*\* $p < 0.001$ .

<sup>†</sup>IPV, intimate partner violence; PAR, population at risk for incident IPV; WEB, Women's Experience with Battering; NA, not applicable (all women scoring 2 or greater on the WEB Scale are defined as experiencing IPV).

<sup>‡</sup>PAR includes those reporting neither assault nor psychological battering at time 1 ( $n = 530 - 73$  experiencing any IPV at baseline).

<sup>§</sup>PAR includes those reporting no assault at time 1 ( $n = 530$  interviewed more than once – 30 experiencing assaults at baseline).

<sup>∇</sup> $p_{\text{trend}}$  test of increasing age and increasing IPV incidence by violence type.

<sup>#</sup>Excludes those also experiencing recent IPV.

<sup>††</sup> $p_{\text{trend}}$  test of increasing baseline WEB Scale score and increasing IPV incidence by violence type.

Table 3 presents IPV continuation rates and correlates of continuation among women who experienced IPV by a current partner at time 1. Among the 73 women who experienced either assaults or psychological battering at time 1, 37 percent also experienced any IPV at time 2. Similar results were found for continuation by IPV type: Approximately two thirds of women

experiencing assaults ( $n = 30$ ) and psychological battering alone ( $n = 43$ ) at time 1 reported that the violence stopped at time 2. Given the small sample, analyses of correlates of IPV continuation are exploratory in nature; we report several trends of borderline statistical significance ( $p < 0.10$ ). When assessing predictors of IPV continuation (table 3), we observed trends among older women ( $p = 0.08$ ), women who had not experienced any past IPV ( $p = 0.07$ ), and women who saw violence as a problem in their relationship ( $p = 0.11$ ). Higher scores on the WEB Scale at baseline were not related to IPV continuation.

**TABLE 3.** Intimate partner violence continuation with a current partner in a cohort of 73 women who sought care at participating Pee Dee Region, South Carolina, rural health care clinics between April 2002 and August 2005, were screened multiple times, and screened positive for intimate partner violence at time 1\*

Type of IPV <sup>†</sup> in current relationship	Any IPV (WEB <sup>†</sup> or assaults) at time 2	
	IPV continuation rate (%) (positive at time 1 and time 2)	95% confidence interval
All women ( $n = 73$ )	37.0	26.2, 49.1
By age (years) at first screen		
<40 ( $n = 30$ )	23.3	10.6, 42.7
40–49 ( $n = 25$ )	40.0	21.8, 61.1
50–63 ( $n = 18$ )	55.6	31.4, 77.6
$p_{\text{trend}}^{\ddagger}$	0.08	
By history of IPV in past relationship		
Any IPV ( $n = 25$ )	24.0	10.2, 45.5
No IPV ( $n = 48$ )	44.7	29.8, 58.7
$p$ value	0.04	
By WEB Scale score at baseline		
0 ( $n = 12$ )	33.3	11.3, 64.6
1–2 ( $n = 14$ )	28.6	9.6, 58.0
3–4 ( $n = 18$ )	33.3	14.4, 58.8
$\geq 5$ ( $n = 29$ )	44.8	27.0, 64.0
$p_{\text{trend}}^{\S}$	0.72	
IPV seen as a problem in current relationship		
Yes ( $n = 29$ )	48.3	29.9, 67.1
No ( $n = 44$ )	29.5	17.2, 45.4
$p$ value	0.11	

\*Population at risk for desistance or continuation excludes those not experiencing intimate partner violence by type at time 1.

<sup>†</sup>IPV, intimate partner violence; WEB, Women's Experience with Battering.

<sup>‡</sup> $p_{\text{trend}}$  test of increasing age and increasing probability of IPV continuation.

<sup>§</sup> $p_{\text{trend}}$  test of increasing WEB Scale score at baseline and increasing probability of IPV continuation.

## DISCUSSION

This is one of but a few studies with prospective data to estimate short-term IPV incidence and IPV continuation. Our reported rate for physical IPV incidence of 4.2 percent was somewhat higher than that reported by Mouton et al. of 2.8 percent (8). The higher IPV incidence rate reported here cannot be explained by our inclusion of psychological battering and assaults in the definition of IPV. The incidence of assaults alone was 4.2 percent (95 percent confidence interval: 2.7, 6.5); however, the lower bound of the confidence interval (2.7 percent) is similar to the reported 2.8 percent. Although the incidence rates reported here are relatively low, the prevalence of IPV in a current relationship (13.8 percent) is comparable with those of other studies using similar measures (7, 17). Our estimated prevalence of current IPV assaults (independent of psychological battering) of 5.7 percent was on the lower end of the published range, 7–29 percent, found for women receiving primary health care (3–7).

Our finding that a higher WEB Scale score ( $\geq 1$  vs. 0) was a strong predictor of physical IPV incidence may indicate that psychological battering precedes and may predict physical abuse. This finding has direct implications for IPV screening in medical and public health settings. If psychological battering precedes physical assaults, then screening and interventions among women experiencing psychological abuse could result in primary prevention of physical assaults. Additionally, screening for both physical assaults and psychological battering could provide secondary prevention.

Our finding that older women were more likely to experience continued IPV may be a function of relationships of longer duration. Having data on the length of the relationship would have allowed us to address this question, yet these data were not available.

The limitations or weaknesses of these analyses are as follows. Women are self-reporting partner violence experienced over the past 5 years. Although this may be the only available source of such data, women may opt not to disclose violence or abuse and thus our estimates may be biased. We could not determine whether IPV desisted because the woman left the relationship or because the partner's behavior changed; we only know if the women continued to experience IPV. Because we could not query the woman on the basis of the timing of the violence experienced (e.g., violence in the past 12 months), we may have misclassified IPV continuation with a likely overestimation. Without this time component, women may have reported that a current partner was (in the past) violent or abusive and not necessarily that the current partner was violent or abusive at the time of the assessment. Further, although we asked about violence or abuse by the current partner, women may have reported on different partners in each assessment. In this scenario, IPV continuation could be a mix of IPV desistance and incident IPV with a new partner. Additionally, women may have experienced violence at time 1 but chose not to report this abuse until the second assessment. Therefore, continued IPV may be misclassified as incident IPV. Because all women were eligible for IPV assessment annually apart from any prior IPV experienced, we have not inflated IPV incidence rates. Further, our restriction to those with current partners improves our ability to address temporal sequence among those at risk.

Selection bias may also have been operational in this short-term prospective study. Although the majority (74 percent of eligible women) consented to screening, those who opted not to be screened may have been at greater risk of IPV. Of relevance to this issue, McNutt and Lee (18) found that, among severely victimized women, those living with their partner were less willing to

participate in telephone surveys (45.5 percent) than those not cohabitating (91.7 percent). In our study, clinic nurses recruited and obtained consent from women in a face-to-face setting; thus, the impact on selection bias of currently residing with a violent partner may not be as dramatic as reported by McNutt and Lee, because the clinic is a safe place to disclose violence in contrast with disclosure by phone, which a partner might monitor. Although we cannot directly evaluate this issue in the existing data, it is possible that those available to be interviewed in the clinic sample over multiple time periods may differ from others not returning to clinics within a 2-year period in terms of physical health or IPV experienced. We have few demographic data to further characterize risk factors for incidence and cessation from these screening data. Our limited sample size results in imprecise estimates of incidence and particularly continuation rates. Finally, this sample of very rural women attending health care clinics may not be generalizable to other populations.

These findings indicate that, in the short term, among a middle-aged population of women living in a rural southern community who sought medical care, IPV incidence rates are relatively low (4 percent). A different interpretation of the reported IPV incidence data is that some women do not disclose IPV until asked a second time. If this is the case, more than two thirds (71 percent) of prevalent IPV were reported at the first assessment. Thus, a single clinical assessment of multiple types of IPV, including physical assault, sexual assault, and psychological battering, may be effective in identifying the majority of women experiencing IPV. Although the continuation of IPV in a relationship is dangerous for women's safety and well-being, the relatively low continuation rates (37 percent) are encouraging. These data suggest that IPV is mutable and potentially influenced by clinic interventions. A fuller understanding of when and why IPV continues is critical for developing appropriate screening recommendations and clinic-based interventions.

Intimate partner violence is widely recognized as one of the leading causes of poor health, disability, and death among women. Studies indicate that two thirds of women killed by their intimate partner sought medical care in the year prior to their murder (19). Yet, most clinicians do not assess women for IPV. Coker et al. (20) found that only 17 percent of women who reported partner violence in personal interviews with study staff had any indication of violence noted in their medical records. Similarly, Wadman and Muelleman (21) found that 50 percent of femicide victims were not identified or appropriately referred to as IPV victims in visits to emergency departments prior to their murders. These studies are part of an emerging literature noting the missed opportunities for potentially life-saving interventions that assessing IPV in health care settings might provide. Gielen et al. (22) reported that 83 percent of both abused and not abused women said it would be easier for abused women to get help if health care providers routinely assessed for violence. Hence, several professional organizations (23–25) support screening women for IPV. Because there have been no published, randomized clinical trials to measure the effectiveness of IPV assessment compared with no assessment in terms of its potential benefits or its potential harm to abused women, the US Preventive Services Task Force (26) issued a “grade I” recommendation on routine screening of adult women for IPV, indicating that the evidence to support the effectiveness of screening women for IPV in the primary care setting is lacking or of poor quality or that the balance of the benefits and harms cannot be determined. Until such knowledge is obtained, it is unlikely that IPV assessment will become

standard care (27). Conducting such research is, therefore, a public health priority toward improving health for all women.

### **Abbreviations**

**IPV:** intimate partner violence

**WEB:** Women's Experience with Battering

Conflict of interest: none declared.

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