ORIGINAL ARTICLE

Intimate Partner Violence in Extremely Poor Women: Longitudinal Patterns and Risk Markers

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Abstract Despite high revalence rates of intimate partner violence in the lives of extremely poor women with dependent children, few studies have investigated the patterns of violence that occur over time, and the characteristics of women that serve as risk markers for partner violence. This paper describes patterns of domestic violence longitudinally and uses multivariate analyses to delineate childhood and adult risk markers for recent intimate partner violence in this population of women. Analyses draw upon a sample of 436 homeless and extremely poor housed mothers receiving welfare, in a mid-sized city in Massachusetts with a large Hispanic population of Puerto Rican descent and relatively fewer Blacks. We found that among women with complete longitudinal data ($N = 280$), almost two-thirds experienced intimate partner violence at some point during their adult life by the end of study follow-up, and that the abuse before and after the baseline interview was episodic and limited over time. To examine the role of individual women's factors, while controlling for partner characteristics, we used baseline data on women who had been partnered during the past year ($N = 336$). Among childhood predictors, we found that sexual molestation contributed most significantly to adult intimate partner violence that occurred during the past year prior to the baseline interview. Adult risk markers included inadequate emotional support from non-professionals, poor self-esteem, and a partner with substance abuse problems. Having a partner with poor work history was another independent predictor of recent abuse. Ethnicity did not significantly predict whether women were abused or not during the past year, contrary to other findings reported in the literature.

Keywords Partner violence · Risk factors · Sexual abuse

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Introduction

Domestic violence is widespread in American society. The National Violence Against Women Survey, a recent nationally representative study of 16,000 men and women, found that 25% of women reported experiencing sexual or physical violence at the hands of an intimate partner in their lifetime (Tjaden & Thoennes, 2000). These rates are even higher among extremely poor and homeless women with studies documenting that almost two-thirds have been victims of domestic violence (Allard, Albelda, Colten, & Cosenza, 1997; Bassuk et al., 1996; North, Thompson, Smith, & Kyburz, 1996). The immediate and long-term effects of partner violence on all family members are devastating, and indicate a vital need for developing effective prevention and intervention strategies for those at greatest risk of being victimized (Campbell & Soeken, 1999; Kenney & Brown, 1996; McCauley et al., 1995).

Despite a large literature on why men act violently towards women (see Feldman & Ridley, 1995 for a review), reports on female victims of partner abuse have largely been

descriptive, and the empirical evidence for consistent individual-level risk factors for female victims has been weaker than the evidence for male perpetrators (Fagan & Browne, 1994; Hotaling & Sugarman, 1986; Kaufman Kantor & Jasinski, 1998;). Further, studies focusing on low-income women have generally only studied the impact of poverty (see below). Given the extremely high rates of partner violence in the households of low-income women, and our limited understanding of domestic violence, it is important to identify factors over a woman's lifespan that increase individual vulnerability. Hotaling and Sugarman (1990) emphasized that these factors "are not necessarily causal . . .but they can be associated with violence against women in close relationships" (p.1). Referred to in the literature as "risk markers", they indicate that various ". . .characteristics (are) associated with an increased likelihood that a problem behavior will occur. . . . The odds of an associated event are greater when one or more risk markers are present" (Kaufman Kantor & Jasinski, 1998, p. 14).

Poverty and intimate partner violence

Although family and intimate partner violence occur across all socioeconomic groups, poverty is highly predictive of male partner violence against women (Fagan & Browne, 1994; Feldman & Ridley, 1995; Kaufman Kantor & Jasinski, 1998). Several national surveys demonstrate that severe violence against both women and children is greatest among families with low incomes or with male partners who are unemployed or have lower occupational status (Benson, Fox, DeMaris, & Van Wyk, 2000; Greenfield et al., 1998; Hotaling & Sugarman, 1990; Straus, Gelles, & Steinmetz, 1980). In addition to low-income status and husband's unemployment, Lenton (1995) identified as a risk marker the husband's patriarchal values, which are closely associated with the male partner's economic circumstances. Findings from the National Family Violence Survey further confirm that low-income status is embedded in a social context that includes beliefs about the legitimacy of violence and inadequate social supports; these factors may be equally if not more predictive of violent acts by male partners than income markers (Cazenave & Straus, 1990; Dibble & Straus, 1990).

Although researchers have documented high rates of all types of interpersonal violence among poor women, few have examined the risk markers for adult partner violence specifically among samples of low-income and homeless mothers (see Browne & Bassuk, 1997 for a review). Given the elevated rates and damaging effects of intimate partner violence, it is important to define risk markers associated with poverty that increase poor women's vulnerability to partner violence. These women face a constellation of stressful life events, oppressive conditions (such as residential instability and homelessness), and lack of support that may be

uniquely or jointly associated with their high risk for victimization. Although this article focuses on low-income women, we review research across all socioeconomic groups in the following sections.

Childhood and adult risk markers for intimate partner violence

Among childhood risk markers, experiencing or witnessing sexual or physical violence has been consistently supported as an important predictor of women's victimization by intimates later in life (Feldman, 1997; Messman & Long, 1996; Widom, 2000, 1989). Cappell and Heiner (1990) concluded "women may learn the victim role when they watch parents engaging in physical fighting" (p.163). Many studies have also documented a high prevalence (e.g., 48%) of child sexual abuse among battered women (e.g., Walker, 1984). Others have found high rates of physical and sexual revictimization when child sexual abuse survivors are followed into adulthood (e.g., Urquiza & Goodlin-Jones, 1994; Wyatt, Guthrie & Notgrass, 1992). Using nationally representative data, Tjaden and Thoennes (2000) reported increased risk of partner violence for women who had been abused as children. A study of very poor women found that a childhood history of physical or sexual abuse was associated with four times greater risk of victimization by a partner in adulthood (Browne & Bassuk, 1997).

However, some studies have not found evidence for a "cycle of violence". In one of the few multivariate studies that directly examines risk markers for wife abuse, Hotaling and Sugarman (1990) found that neither witnessing parental violence nor being physically abused predicted wife abuse when stronger predictors were controlled. Instead, they found that the degree of conflict in relationship differentiated violent and non-violent relationships among female victims.

In adulthood, the risk marker for domestic violence that has been most researched is substance use. Positive associations between women's substance use and being battered have been documented in clinical samples (e.g. Miller, Downs, & Gondoli, 1989) as well as community samples (e.g., Breslau, Davis, Andreski, & Peterson, 1991), though the research is divided and some authors (e.g. Kaufman Kantor & Asidigian, 1996) minimize substance use as a risk marker for women's victimization by a partner.

The literature on the relationship between partner violence and ethnic background is also divided. Most researchers have focused on Hispanic families because of a presumed higher level of male dominance in those families, a stereotype that a number of empirical studies have disproved (see Straus & Smith, 1990). Descriptive findings from national studies have shown Hispanics to have higher domestic violence rates (Straus & Smith, 1990; Tjaden & Thoennes, 2000) researchers who have controlled for socioeconomic factors

found that differences between Hispanics and non-Hispanic Whites were no longer statistically significant (Kaufman Kantor, Jasinksi & Aldarondo, 1994; Straus & Smith, 1990). Browne and Bassuk (1997) reported that in a sample of impoverished women, Latinas were at significantly lower risk of severe physical assault by a partner than non-Hispanic whites. At least one study found that among shelter residents, Hispanic women had different characteristics (e.g., lower income, education, and employment, and larger families) than White or Black women, all factors that are likely to affect women's likelihood of experiencing domestic violence (Gondolf, Fisher, & McFerron, 1988). These researchers reported that Hispanic women who were "bound by a norm of 'loyal motherhood'" had longer histories of abuse and were hampered by language differences, immigration status, and less social capital. Others have found acculturation to be a risk marker, with U.S. born Mexican Americans and Puerto Ricans having higher partner violence rates than their foreign-born counterparts (Kaufman Kantor et al., 1994; Sorenson & Telles, 1991).

The research on ethnic influences on intimate partner violence is difficult to interpret because, as Kaufman Kantor and her colleagues note, many studies have treated Hispanics as a homogenous category. Kaufman Kantor et al. found considerable variation in marital violence rates, norms towards violence, and other related factors, among Hispanic sub-groups, suggesting that the lack of specificity in defining ethnicity as well as considering migration patterns and degree of acculturation may be serious shortcomings.

Self esteem and social support resources have also been studied as correlates of women's victimization in intimate relationships, although to a lesser extent. In their review, Hotaling and Sugarman (1986) found mixed evidence (three studies out of five found significant findings) for low self-esteem as a risk marker of partner violence. Feldman and Ridley (1995) concluded that the evidence for self-esteem as a risk marker in women is weak. Other authors suggest that women who are physically or sexually victimized as children may suffer from low self esteem as adults, which may in turn be associated with victimization by partners (Fagan & Browne, 1994; Fleming, Mullen, Sibthorpe, & Bammer, 1999). Various authors have noted the connection between social support and partner violence. Cazenave and Straus (1990) found "family, kin, and neighborhood networks . . . may serve as social support systems and family violence control mechanisms" (p. 337). Straus (1990b) additionally concluded that among highly stressed men, those with stronger supports were less likely to engage in violent assaults against their spouses. Barnett, Martinez, and Keyson (1996) found battered women to have lower levels of social support, and documented an inverse relationship between battered women's support and their likelihood of responding violently to abusing partners.

Finally, research has shown that women are put at substantially greater risk of domestic violence by the characteristics of their partners. Strong relationships have been reported between women's battering and their partners' substance use, (Kaufman Kantor & Straus, 1990; Lipsey, Wilson, Cohen, & Derzon, 1997), experiences of violence as a child (Feldman, 1997; Hotaling & Sugarman, 1986; Straus et al., 1980) and socioeconomic characteristics, such as occupational status and work/unemployment history (Kyriacou et al., 1999; Straus et al., 1980).

Longitudinal studies of battered women

While the research discussed above focuses on risk markers for partner violence, a separate but closely related body of literature has examined the course of intimate partner violence by tracking violent relationships longitudinally. Contrary to popular stereotypes, researchers have found that domestic violence, particularly in its less severe forms, is quite episodic in nature and that many battered women do escape abusive relationships. In a longitudinal study over 2.5 years, Campbell, Miller, Cardwell, and Belknap (1994) found that only 25% of women who were battered at the beginning of the interval remained so at the end of the interval. Woffordt, Mihalic, and Menard (1994) found that roughly half of the women in their sample who were battered remained so after three years. Looking at perpetrators of violence, Feld and Straus (1990) found high "desistance rates" (43%) among men who had engaged in a severely abusive act in the previous year. None of these studies, however, focused on impoverished women.

Goals of the present study

Using data from the Worcester Family Research Project (WFRP), a longitudinal study of 436 homeless and extremely poor housed mothers receiving welfare, this paper extends previous work that focused on socio-demographic factors and childhood violence as predictors of a lifetime occurrence of intimate partner violence (Browne & Bassuk, 1997). We investigate childhood and adult factors that may significantly contribute to *recent* intimate partner violence (defined as occurring during the year prior to study baseline), and consider childhood violence and life events, parenting as a child, level of income and work, social support resources, woman's self-esteem, previous partner violence, substance abuse problems, partner's problems (substance abuse, poor work history, criminal record) as potential risk and protective factors. We hypothesize that childhood sexual molestation and inadequate non-professional supports will be associated with increased risk of partner violence during the past year. We take advantage of our ethnically diverse sample to further examine whether Puerto Rican women are at increased

risk of battering, when controlling for other factors. Using the longitudinal data, we also describe the patterns of intimate partner violence across four timeframes, which span early adulthood (age 17) to study follow-up. This description examines whether poor women with children tend to be chronically battered over time, in contrast to experiencing more episodic abuse previously reported for community-based samples (Campbell et al., 1994).

Methods

Sample and enrollment procedures

The Worcester Family Research Project (WFRP) used an unmatched case-control design to recruit homeless and housed (never homeless) female heads of households in Worcester, Massachusetts. Worcester is the state's second largest city; 15% of its 169,000 residents live below the poverty level. Unlike most small to mid-sized cities, Worcester has a large Hispanic population of Puerto Rican descent and relatively fewer Blacks.

A total of 220 homeless mothers with dependent children were recruited from all nine of Worcester's emergency and transitional shelters and its two welfare motels (3.2% of the sample) between August 1992 and July 1995. Study staff asked mothers who had been in a shelter for at least seven days to participate in a multi-session interview. Out of the 361 women approached for enrollment, 102 refused to participate and another 39 did not complete the baseline interviews. The comparison group of housed mothers is representative of families on welfare in Worcester who have never been homeless. They were randomly selected from women who visited Worcester's Department of Public Welfare Office to re-determine their welfare eligibility or to discuss other issues with caseworkers. Out of 539 women approached, 141 were disqualified for previous homelessness, and an additional 178 refused to participate. No differences in age, marital status, education, number of children, and welfare use were found between the final sample and those who refused to participate or did not complete the baseline interview. The combined sample (homeless and housed) is similar to poor women in other U.S. cities in terms of age, income, and number of children, but has a greater proportion of Hispanics and fewer African-Americans than are found in most other mid-sized cities.

Table 1 describes the demographic characteristics of women in the sample. Women recruited into the study tended to be young, never married, and to have two or more young children. A large proportion of the women were Hispanic (37%), primarily Puerto Rican (86% of Hispanic women were Puerto Rican), reflecting Worcester's population, which in 1990 was 30% Hispanic, with 75% of Hispanics being

Table 1 Demographic characteristics of women in WFRP sample ($N = 436$)

Characteristic	Mean or %
Age in years, mean (range)	27.4 (16–58)
Race/ethnicity, %	
White	39.0
Black	16.5
Hispanic	36.5
Other	8.0
Marital Status, %	
Never married	66.3
Married	5.8
Separated/divorced/widowed	27.9
Children	
Number of children, mean	2.3
Age of children in years, mean	4.8
Income	
Annual income, mean	$8982
<$7000, %	31.2
$7000–$15000, %	63.0
>$15000, %	5.8
Education, %	
Some or no high school	58.6
High school graduate/GED	28.0
Some college	13.4
Work history	
Ever worked at paid job, %	70.0
Currently working at paid job, %	2.5
Housing history	
Number of moves in prior 2 years, mean	2.8

Puerto Rican. The WFRP sample is economically impoverished, with a large majority of women reporting annual income below $15,000.

Of the 436 women in the baseline study, 356 were interviewed again between May 1994 and November 1996, and 327 were again interviewed between September 1995 and August 1997. The two follow-up interviews were conducted at approximately 12 and 24 months after baseline. Comparisons were made between women who completed the study and others in the sample. Women who were homeless at baseline, Puerto Ricans, and those with less than 12 years of education were less likely to complete the study than initially housed women, non-Hispanic Whites, and high school graduates, respectively. There were no other differences in terms of the following baseline variables: age, marital status, yearly income, number of children, lifetime history of partner violence, and having worked during the past 5 years.

Data collection and instruments

At baseline, data were collected in 3–4 interviews over approximately 10 hours. As described above, there were two waves of follow-up approximately one year apart. At follow-up, instruments and questions used at baseline to collect data

on current adult variables were repeated. Housed women were interviewed at home or in a community-based project office while homeless women were interviewed at the shelter. Families received vouchers redeemable for food or merchandise at local stores as compensation for their participation. Respondents were given the option of being interviewed in Spanish or English by bilingual, bicultural interviewers. All question sets and instruments were translated into Spanish by bilingual, Puerto Rican translators and were reviewed for cultural relevance. Selected instruments, such as the Conflict Tactics Scale (CTS), were back translated to make sure that the Spanish version was valid. Whenever possible, pre-existing Spanish instruments were used. In general, the selection of self-report instruments was minimized. When necessary, the interviewer read the questions to the mother.

Using a modified version of the *Personal History Form* (Barrow, Hellman, Lovell et al., 1985), we obtained demographic information including information about housing, income, jobs, education, life events, and service utilization. This form was developed for use with homeless and low-income persons

Information about the mother's experiences of physical and sexual victimization across the lifespan was gathered using an adaptation of the *New York Assessment Instrument for Women* (NYAIW). The NYAIW incorporates established measures of intimate violence, including the *Conflict Tactics Scale* (CTS). A number of studies have assessed the reliability of the CTS and obtained coefficients ranging from .50 to .96. The instrument has been validated in both clinical populations of batterers and community-based samples (Straus, 1990a).

The physical aggression scale of the CTS (Straus, 1979) was used to obtain data on physically violent acts by childhood caretakers and intimate male partners in adulthood. Physical violence by male partners since age 17 was defined as being kicked, bit, or hit with a fist; hit with an object; beaten; choked; strangled, or smothered; threatened or assaulted with a knife, gun, or automobile; or forced to have sex or perform sexual acts against one's will. At baseline, the CTS data were collected for women's past and current or most recent intimate relationships. During the follow-up interviews, the same CTS data were collected, but the definition of partner was stated more broadly as involvement with men that included "just a couple of dates, not necessarily sexually involved". The broader definition was used so as to not exclude victimizations that occurred in recent relationships. Severe physical violence by child caretakers was defined as the occurrence of at least one of the following before age 18: being kicked, bit, or hit with a fist; hit with an object; beaten up; burned or scaled; threatened or assaulted with a knife or gun; or having one's life threatened in some other manner.

Information about sexual molestation was obtained by asking a series of questions. Sexual molestation was defined as the occurrence before age 18 of "any kind of sexual advance or any unwanted sexual experience" by any adult or other individual older than the respondent. Respondents were queried about three types of potential perpetrators: male relatives, female relatives, and non-relatives. For each positive endorsement, respondents were asked their age when this first happened and the age of the other person at that time.

Personal assessment of social support resources (PASS)

The PASS (Dunst & Trivette, 1988) was used to assess the size of each woman's social network and resource base at the time of the baseline interview. This instrument was developed and validated on poor families with developmentally at risk preschool children (Dunst, Trivette, & Cross, 1988). The subscales for emotional support, instrumental support, and conflicted support have been adjusted for network size. Previous WFRP analyses have shown the PASS to have good predictive validity, e.g., the size a woman's network predicted the duration of her index homeless episode (unpublished manuscript), and the degree of conflict in non-professional network support predicted whether women had experienced multiple episodes of homelessness by baseline (Bassuk, Perloff, & Dawson, 2001).

Rosenberg self-esteem scale

This scale (Rosenberg, 1965) was used to measure self-esteem at the time of the interview. This 10-item instrument provides a brief, easily administered assessment of self-esteem that has been used extensively, and is considered "the standard against which new measures are evaluated" (Robinson, Shaver, & Wrightsman, 1991, p.123). High internal consistency (.77, .88, .92) and test-retest (.85, .82) coefficients have been obtained with the SES; both convergent and discriminant validity have been demonstrated (Robinson & Shaver, 1973; Robinson et al., 1991). In our sample the Cronbach's alpha was .81, within the range found in other studies.

Parental bonding instrument (PBI)

The PBI (Parker, Tupling, & Brown, 1979) was used to assess positive parenting and was administered separately for the primary female and male caretakers of the respondent. This instrument contains 25 statements concerning the caretaker's attitudes and behaviors, which the respondent rates for frequency of occurrence. Of the 25 items, 20 are unambiguously positive or negative (e.g. "Seemed to understand what I needed or wanted", "Made me feel I wasn't wanted") and these items were combined into a single positive

Table 2 Longitudinal patterns of intimate partner violence among impoverished women[a]

Row	N	%	Prior to Year before baseline[b]	Year before baseline interview	Year before second interview[c]	Year before third interview[d]
1	95	33.9%	None[e]	None	None	None
2	66	23.6%	IPV[f]	None	None	None
3	26	9.3%	None	IPV	None	None
4	14	5.0%	IPV	IPV	None	None
5	11	3.9%	None	None	None	IPV
6	11	3.9%	IPV	None	None	IPV
7	9	3.2%	None	IPV	None	IPV
8	9	3.2%	IPV	None	IPV	None
9	7	2.5%	None	None	IPV	None
10	6	2.1%	IPV	None	IPV	IPV
11	5	1.8%	None	IPV	IPV	None
12	5	1.8%	None	IPV	IPV	IPV
13	5	1.8%	IPV	IPV	None	IPV
14	4	1.4%	IPV	IPV	IPV	None
15	4	1.4%	IPV	IPV	IPV	IPV
16	3	1.1%	None	None	IPV	IPV
	80	100.0%				

[a] Based on 280 women with complete data on all three interviews.

[b] Age 17 until one year prior to the baseline interview.

[c] One year after baseline.

[d] Two years after baseline.

[e] Indicates no intimate partner violence occurred during this timeframe.

[f] Indicates intimate partner violence occurred during this timeframe.

parenting index for each caretaker (Parker, 1994). Internal consistency for these scales with our sample was high, Cronbach's alphas = .90 for both the female and male caretaker scales. The PBI has been validated and used extensively in clinical (primarily depressive disorders) and non-clinical populations (Parker, 1994).

In addition to the above instruments, original questions were included in the baseline interview to obtain additional information on demographics, childhood domains such as out-of-home placement, life events, and caretakers' substance use/health, and adult domains such as relationship status, family and partner characteristics, help-seeking behaviors, and service use patterns. (See Bassuk et al., 1996 for a full review of instruments used in the WFRP).

Data analysis

We conducted two general analyses. First, we used the longitudinal data on women who had completed all three interviews ($N = 280$) to describe the patterns of intimate partner violence over time in the WFRP sample. (Note that although 327 women completed the third interview, as described above, 19 of these women did not complete the second interview, and 28 did not provide complete information on CTS items.) We used four discrete timeframes for this descriptive analysis: (1) age 17 until one year prior to the baseline interview; (2) the year prior to the baseline interview; (3) the year prior to the second interview (one year after baseline); and (4) the year prior to the third interview (2 years after baseline). The rates of intimate partner violence for the subgroup of women with complete interview data were approximately the same as those based on the available data for

each timeframe (see Results). The 280 women did, however, differ significantly from other women on important baseline covariates used for the second analysis; these differences do not appear to be related to the occurrence of intimate partner violence, given the consistency of cross-sectional rates for the subgroup and other women (see Results).

Second, we conducted multivariate analyses to identify risk markers for recent intimate partner violence (defined as occurring during the past year), using baseline interview data. In order to control for partner characteristics, the analysis excluded women without a partner during the year prior to baseline, despite the potential for battering after leaving a relationship (Feld and Straus, 1990). This was also necessary because of interview wording (women were asked about violent behaviors while in an intimate relationship). Among the 336 women with a partner, those with and without intimate partner violence during the year prior to the baseline interview were compared across several domains, using t-tests for continuous variables and chi-square tests for discrete variables. These domains, a priori identified from the literature as important predictors of intimate partner violence, included both childhood and adult factors (see Table 2). We used logistic regression to examine the multivariate relationship of recent intimate partner violence with childhood and adult factors. Covariates for housing status at baseline and ethnicity were included in all models under consideration to control for important design and background factors. Stepwise procedures were used to first identify independent childhood predictors among factors with significant univariate relationships to intimate partner violence. The same procedure was used to add adult factors to the childhood predictors. Once the final model was selected, the validity of the intimate partner

violence analysis for the case-control setting was tested and confirmed according to conditions required for secondary logistic regression analysis (Nagelkerke et al., 1995).

Results

Longitudinal patterns of intimate partner violence

The four cross-sectional rates of intimate partner violence for the 280 women with complete interview data were the following: 42.5% for the period aged 17 years until one year prior to baseline; 25.7% in the year prior to the base-line interview; 15.4% in the year prior to the second in-terview; and 19.3% in the year prior to the third inter-view. These rates were not significantly different from those based on remaining available data for each timeframe: 42.5% vs. 40.0% ($p = .64$), 25.7% vs. 23.4% ($p = .60$), 15.4% vs. 16.4% ($p = .83$), and 19.3% vs. 20.0% ($p = .91$).

We used important baseline covariates to further check for potential bias in descriptive analysis of battering in the subgroup of women with complete data. No differences were found when the 280 women were compared to other women in terms of self-esteem ($p = .37$) and non-professional emo-tional support ($p = .18$), two protective factors identified by multivariate analysis (see below). Women with complete data did, however, have significantly higher risk factor rates. They had proportionally greater rates of childhood molesta-tion (45.7% vs. 35.7%, $p = .043$), substance abusing partners (38.3% vs. 26.4%, $p = .015$) and partners with poor work histories (39.7% vs. 29.3%, $p = .03$). These differences are likely due to factors associated with drop out, rather than in-dicating elevated rates of battering for the 280 women, given the consistency of the cross-sectional rates. In particular, Puerto Rican women were less likely to complete all three interviews (31% vs. 44%, $p = .01$), had significantly lower rates of childhood sexual molestation (Browne & Bassuk, 1997), but did not differ significantly in their risk for recent intimate partner violence (see below).

Table 2 describes the longitudinal patterns of partner vi-olence, using the four timeframes defined above, and shows the frequency of each pattern among the 280 women. This description includes all possible patterns in order of fre-quency. For example, the fifth row indicates that 11 of the 280 women (3.9%) experienced intimate partner violence for the first time during the year prior to the third interview (last timeframe).

The most frequently occurring pattern (first row of Table 2) shows that one third of the women ($N = 95$) had not experienced intimate partner violence by the end of the study. Almost a quarter of the women had experienced partner violence at some time prior to the year previous to the baseline interview (first timeframe), but did not report

any additional violence during study follow-up (see row 2). Another 9.3%, 2.5%, and 3.9% reported that partner violence occurred only during the year prior to the baseline, second, and third interview, respectively (see rows 3, 9, 5). Less than 2% of the women reported that violence by a partner had occurred across all four time frames (row 15). With regard to return to violent relationships, among the 145 women whose violence had stopped at some time prior to the last timeframe (year previous to third interview), 27.6% reported the recurrence of partner violence.

We further examined the longitudinal patterns in Table 2 in terms of recent and previous partner violence. We found that the relationship between recent intimate partner violence and previous partner violence in these 280 women depended on the timeframe. At baseline, the association between re-cent and previous battering was not statistically significant: 37.5 % of recently battered women reported previous partner violence, compared to 44% with partner violence histories among women not battered during the year prior to base-line ($p = .32$). In contrast, women who experienced intimate partner violence during the year prior to the second interview (third timeframe) had a significantly greater rate of previous violence compared to women who had no partner violence during that timeframe (77% vs. 55%, $p<.01$), with similar results for the year prior to the third interview (80% vs. 58%, $p<.005$).

Childhood and adult predictors of recent intimate partner violence at baseline

Table 3 summarizes the relationship of recent intimate part-ner violence (occurring during the past year) with demo-graphic, childhood, and adult factors, based on data col-lected at the baseline interview for the 336 women with partners. (The analysis excluded women without a partner during the year prior to baseline; see Data Analysis, above.) Women who experienced childhood sexual abuse were sig-nificantly more likely to experience recent intimate partner violence ($p<.001$). Other childhood factors associated with increased risk of adult partner violence during the past year included: parental fighting ($p<.01$), mother who was a vic-tim of abuse/battering ($p<.01$), child who was placed in fos-ter care ($p<.05$), and primary female caretaker with mental health problems ($p<.01$).

In addition, two aspects of women's social support during the four weeks prior to the baseline interview were significantly associated with intimate partner violence during the prior year. Women with no partner violence had significantly greater levels of emotional support from non-professional members in the network ($p<.001$), and significantly less conflict in their non-professional network compared to women who reported partner violence ($p<.05$). (Note that conflict in the network *excluded* conflict due to

Table 3 Potential risk and protective factors for recent partner violence at baseline

	Recent partner violence (%) ($N = 104$)	No recent partner violence (%) ($N = 232$)
Sociodemographic		
Age (mean)	26.4	26.2
High school graduate	46.2	58.6*
Puerto Rican	31.7	38.8
Black or other ethnicity	24.0	20.3
Homeless At baseline	52.9	53.9
Childhood violence		
Childhood physical abuse	71.2	60.9
Childhood sexual abuse	58.7	37.5***
Parents fought physically	56.7	40.1**
Mother abused/battered	57.7	40.1**
Childhood life events		
Ran away	46.2	40.1
Foster care placement	21.8	12.2*
Placed out of home	46.2	38.4
Homeless as child	9.8	10.1
Parents separated	61.2	61.5
Parenting as a child		
Primary female caretaker problems		
Substance abuse	20.2	18.1
Mental health	58.7	40.5**
Physical health	27.9	27.2
Primary male caretaker problems		
Substance abuse	50.0	40.1
Mental health	31.7	29.3
Physical health	32.7	23.7
Random anger from		
Either primary caretaker	61.5	64.7
Both primary caretakers	18.3	17.7
Positive parenting practices (mean)	2.2	2.2
Adulthood		
Number of children (mean)	2.2	2.2
Annual income (mean)	8990	8730
Months in past year worked at least 10 h per week (mean)	0.50	0.98
Current substance abuse	37.5	31.9
Mental health hospitalization in past year	1.9	2.6
Prior intimate partner violence	40.4	36.4
Current self-esteem (mean)	30.1	32.8***
Current social support		
Size of non-professional network (mean)	4.9	4.8
Non-professional emotional support (mean)	8.6	9.6***
Conflict in non-professional network (mean)	3.9	3.2*
Non-professional instrumental support (mean)	10.3	10.7
Seeking support	3.9	1.7
Partner characteristics		
Current substance abuse	59.4	23.4***
Criminal activity	27.7	18.0*
Poor work history	53.0	29.0***

* $= p < .05$.

** $= p < .01$.

*** $= p < .001$.

the partner.) Women with no recent partner violence also had significantly more self-esteem at baseline ($p < .001$). The rate of previous partner violence was not significantly different for women with and without any partner violence at baseline, consistent with the results for the 280 women with complete interview data. Women whose partners had substance abuse problems (drug or alcohol) or who had poor work histories or who had criminal records were, however, more likely to have been battered during the same period ($p < .001$, $p < .001$, $p < .05$, respectively).

Table 4 Result of logistic regression for recent partner violence at baseline ($N = 336$)

Predictors of current intimate partner violence	Parameter estimate	Standard error	Odds ratio
Homeless at baseline	− 0.169	.29	0.84
Hispanic (primarily puerto rican)	0.417	.35	1.52
Black or other ethnicity	0.440	.37	1.55
Childhood sexual abuse	0.887	.29	2.43**
Self-esteem	− 0.078	.03	0.93**
Non-professional emotional support	− 0.163	.07	0.85*
Partner poor work history	0.737	.29	2.09*
Partner substance abuse	1.602	.30	4.96***

$* = p < .05; ** = p < .01; *** = p < .001$.

The multivariate model for intimate partner violence during the year prior to the baseline interview shows that the most significant childhood predictor was childhood sexual molestation (adjusted odds ratio 2.43, $p < .01$; see Table 4). Out-of-home placement into foster care remained significant after adjustment for childhood molestation, but was not an independent predictor, due to confounding with whether or not a woman's partner had a poor work history (adjusted odds ratio 2.04, $p = .074$, when added to the model in Table 3). The effects due to other childhood correlates of recent partner violence were not significant, when controlling for childhood molestation.

The level of non-professional emotional support and self-esteem remained significant predictors in the multivariate model. For these ratio-scaled predictor variables, the odds ratios reported in Table 4 are the decreased risk of intimate partner violence during the past year associated with a one-unit increase in the corresponding predictor. For the emotional support measure, a single unit approximates the difference between women with and without recent partner violence (see Table 3), so that the odds ratio in Table 4 (adjusted odds ratio = .85, $p < .05$) corresponds to this difference. For self-esteem, the difference is greater, equal to three units, with a corresponding (adjusted) odds ratio = .79. Women were at greatest risk of experiencing domestic violence during the past year when the partner had substance abuse problems (adjusted odds ratio = 4.96, $p < .001$). Less increased risk was found due to having a partner with a poor work history (adjusted odds ratio = 2.09, $p < .05$). Neither housing status, nor ethnicity were significant predictors, but were retained in the model as important controlling factors.

The final model achieved a proportional reduction of 20% in the log likelihood chi-square, a likelihood ratio R^2 proposed for logistic regression.

Discussion

This is the first study to date that has investigated childhood and adult risk markers for recent intimate partner violence, and longitudinal patterns during adulthood among extremely poor women, all of whom were mothers with dependent children. Most previous studies have focused on the perpetrators, rather than on women's characteristics and their partners, and, to date, none have specifically focused on risk factors and the patterns of domestic violence over time among low-income women. We found that approximately two-thirds of the women who completed all three interviews ($N = 280$) had experienced intimate partner violence sometime during adulthood, and that most of these experiences were episodic and limited. Consistent with findings for a community-based sample (Campbell et al., 1994), the rate of return to violent relationships by the end of the study among women whose battering had stopped was slightly less than one-third. In contrast, only 4 women were consistently involved in a battering relationship, when examined across four timeframes that spanned early adulthood to end of the study follow-up.

The episodic nature of domestic violence for this population is important for interpreting the multivariate results. Specifically, women who experienced partner violence during the year prior to baseline (a measure of recent or "current" partner violence) include a greater proportion of women at high risk for such violence, when compared to women who had experienced partner violence by baseline (a measure of "lifetime" occurrence of partner violence). Our longitudinal data make this concrete. Among the 280 women with complete data, the rate of recurring partner violence (being abused by a partner during more than one timeframe) was 64% for women who reported violence during the year prior to baseline ("current" measure), compared to 44% for women who reported violence at some time prior to baseline ("lifetime" measure).

Childhood risk markers for adult intimate partner violence

With regard to childhood risk markers, we found that sexual molestation during childhood was most highly associated with the likelihood of recent adult intimate partner violence (occurring during the past year). Given the broad definition of sexual molestation used in this study, these childhood markers may range from childhood sexual abuse to various forms of sexual coercion, such as date rape. Social learning theory, in which children model their parent's behavior, may, in part, explain some of these findings. Researchers have also reported that women who were victimized as children have damaged self-esteem and may feel that abusive relationships

are legitimate and expectable (Straus & Kaufman Kantor, 1994). When examining these findings, it is also important to consider the macro-level and structural factors that create the context for violence.

In this study, childhood sexual molestation significantly predicted partner violence during the year prior to baseline, even when controlling for adult factors. For those children who experienced severe abuse at a young age by a perpetrator (e.g., parent) that they depended on, this finding is not surprising since childhood sexual abuse occurring during critical developmental periods frequently shatters a younger child's sense of safety in the world, trust in other people, and an intact sense of self. However, the impact of child sexual abuse on adult vulnerabilities and behaviors depends on many factors, such as the nature and duration of exposure, age of the child, and relationship to the perpetrator (see Kendall-Tackett, Williams, & Finkelhor, 1993). Additional research is necessary to understand the combination of factors that contribute to the association between childhood sexual molestation and adult intimate partner violence. We do know that extreme and persistent adversity during childhood often predicts negative outcomes and vulnerabilities during adulthood.

Although childhood sexual molestation is overriding as a predictor of recent intimate partner violence in multivariate analyses, comparable effects due to foster care placement as a child were also found. Placement in foster care may further undermine the formation of secure attachments to parental figures during childhood since placement may result from problems in the home, particularly with unstable caretakers, itself a risk marker. Out-of-home placement can also compromise children's capacity to develop the skills necessary to establish themselves as self-sufficient adults, to form supportive long-term relationships that will buffer life's inevitable hardships (Eagle, 1994), and to parent. This is consistent with the confounding between being placed in foster care and having a partner with a poor work history that accounted for the significance of this predictor falling marginally above the usual .05 level. Additional research is critical for understanding how these factors contribute to the adverse long-term effects of foster care placement.

Adult risk markers for recent intimate partner violence

Research indicates that a powerful way to reduce stress is through social support from family and friends. During times of personal crises, supports can effectively buffer stress (see Cohen & Willis, 1985 for a review). Social support is typically defined as transaction of empathy and concern, tangible aid (e.g., babysitting, money), or information and advice from family and friends. Positive support is particularly important in extremely poor women who are heading families alone and are often assuming multiple roles as care-

taker, worker and homemaker. Not surprisingly, current negative or conflicted (non-partner) social support was found to be an important correlate of recent intimate partner violence. Conversely, women with greater non-professional emotional support in their relationships were significantly less likely to be in an abusive relationship. Further, women who had greater self-esteem at baseline were less likely to be victimized during the year prior to baseline. As discussed in the introduction, evidence for self-esteem as a risk marker is equivocal; our study results strengthen the evidence for it.

The multivariate analysis further replicated previous research, showing that substance abuse by male partners was a strong risk marker for domestic violence (Coker, Smith, Mckeown, & King, 2000; Kaufman Kantor & Straus, 1990; Kyriacou et al., 1999), while women's substance abuse was not (Kaufman et al., 1996). Similarly, partners with a poor work history posed greater risk, a finding supported by others (Straus et al., 1980). In contrast to other studies, women who spent more time working—at least ten hours/week during part of the year prior to the baseline interview—were at similar risk as women who did not work. Moreover, increased capacity to work was not a protective factor, relative to the risks posed by childhood molestation and foster care placement. Our finding may be due to the extremely low levels of work reported by women. For women who were not battered, the typical duration of working ten or more hours a week was just one month (see Table 2). This "floor" effect (little room for decreased levels of work) constrains the possibility for a significant difference.

Also in contrast to some studies, ethnicity did not significantly differentiate women who were at greater risk. Previous analysis of the WFRP data additionally failed to find evidence for increased risk of severe physical assaults among Latinas, when examining the lifetime occurrence of partner violence, but did find that their risk was significantly lower than that of non-Hispanic whites (Bassuk, Perloff, & Coll, 1998; Browne & Bassuk, 1997). These multivariate results, however, did not control for current adult factors. Related WFRP analyses of physical violence by current or most recent partner did not find significantly different risks for Puerto Rican women and Non-Hispanic whites; the interpretation of these results is less clear, since this definition of partner violence case is confounded by differences in the timing of previous relationships. We also note that other researchers who found that Hispanic families were at greater risk of partner violence had investigated couples that were living together (Kantor et al., 1994), or concluded that physical or sexual violence between partners was more likely to occur within a marriage (Sorenson & Telles, 1991). These results may not generalize to the population of impoverished women considered here, in which many were born in Puerto Rico, had low levels of acculturation, are

unmarried, and possibly living in shelter (see Bassuk et al., 1998).

Strengths and limitations of the study

Most studies have focused primarily on risk markers among male perpetrators. Although this study has attempted to address a significant gap in the literature by focusing on women victims, while controlling for partner characteristics, various limitations must be borne in mind when interpreting the data. The sample was drawn from only one city and included a disproportionate number of Puerto Rican women and fewer Blacks. Although representative of small and mid-sized cities, the findings may not be fully generalizable. In addition, we used definitions of "severe" violence and sexual molestation but did not further distinguish the nature of the abusive episodes. Also, the language used during later interviews broadened the definition of 'intimate partner', although the corresponding cross-sectional rates do not appear to have been inflated by this change.

Our findings are also subject to limitations of the baseline interview. Because the CTS questions were not tied to a specific time frame (i.e., the past year), we used detailed information about relationships to identify whether the most recent occurrence of intimate partner violence prior to baseline fell within this timeframe. This procedure allowed for the possibility of "false positives": women whose most recent violence occurred prior to the year *previous* to baseline, but who were considered to have been battered *during* the year prior to baseline. A false positive could occur only among women who had a relationship during the year prior to baseline that started before that year, and only if battering by that partner stopped during the past year. Questions about acts of violence by a current partner were asked in the present tense ("how often the partner uses . . . in the relationship"). Thus, any battering that was falsely identified as recent was likely limited to the 33 women who were not currently partnered at the baseline interview, but had left a violent relationship sometime during the past year. Among these women, 23 had been in the relationship for at least two years, allowing for greater possibility that any violence that occurred was not recent. Even so, we expect that many of these women continued to be battered while the relationship lasted (e.g., Campbell et al., 1994). It is difficult, however, to gauge the degree of error in the baseline rate (higher than the two later cross-sectional rates), since the rate for the year prior to the third interview is 26% higher than the rate for the year prior to the second interview. Potential measurement errors may also have attenuated the association between previous partner violence and recent battering at baseline. The multivariate results, consistent with previous findings in the literature, suggest that the risk marker analysis is robust to possible false positives.

Conclusion

We have documented childhood sexual molestation and foster care placement as important risk markers for partner violence later in life, particularly for higher risk women who reported domestic violence during the past year and were more likely to experience re-victimization by adult partners. For these impoverished mothers, positive emotional support and self-esteem did not mediate the effects of such childhood adversity, which had a pronounced effect independent of these adult factors. We also found limited influence attributable to the numerous individual factors measured by the WFRP, as evidenced by the modest percent of explained variation due to predictors. The findings are significant because they describe patterns of violence longitudinally and demonstrate risk markers for recent partner violence among poor mothers—a subject and group that has not been studied using multivariate analyses.

In sum, childhood adversity, such as sexual molestation and foster care, places women at greater risk of difficulties as adults. Despite our growing understanding of these patterns and the nature of these risk markers, many children in these circumstances are not identified as requiring immediate care or as being at high risk of negative longer-term outcomes. Thus, many of these children do not receive adequate treatment and support (Kendall-Tackett et al., 1993). Further, given the extremely high prevalence rates of domestic violence in these families (Allard et al., 1997; Bassuk et al., 1996), it is imperative that policymakers and practitioners are aware of these patterns and risk markers. Although not causal, these markers can help policymakers design strategies for protecting women and children who are at greater risk of partner abuse. For example, to address the problems of young children in these circumstances, preventive programs that account for these important risk markers should be integrated into the continuum of care. These programs must be accessible, affordable, family-oriented, and sensitive to cultural differences. Only by acknowledging the potential long-term adverse impact of sexual molestation and foster care placement, can we improve the well-being of these high risk women.

Further, we found little impact due to housing status (homeless or not) and ethnicity, likely surrogates for important macro-level socio-cultural factors in this population. These findings suggest that future research should consider contextual factors, such as neighborhood policing practices (response rate to calls from victims, arrest rates of perpetrator) and the degree to which community efforts against batterers (arrest, prosecution, treatment) are coordinated. The literature is mixed, however, on the relative impact of these factors (see, e.g., Dunford, Huizinga, & Eliot, 1990; Sherman, 1992; Steinman, 1988). More detailed assessment is needed as well, of the complex interplay among economic,

social, and cultural factors. This complexity is less amenable to multivariate modeling, particularly when interactive effects are likely to be second or third order.

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